

Fig. 1 (PRIOR ART)

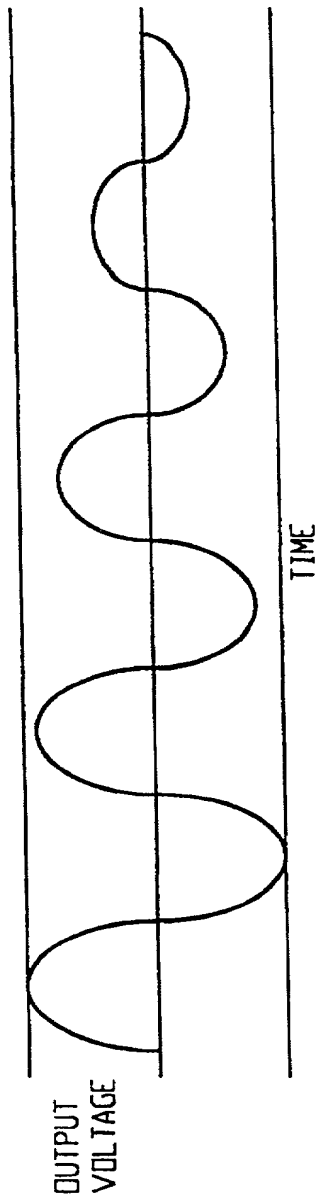


Fig. 3

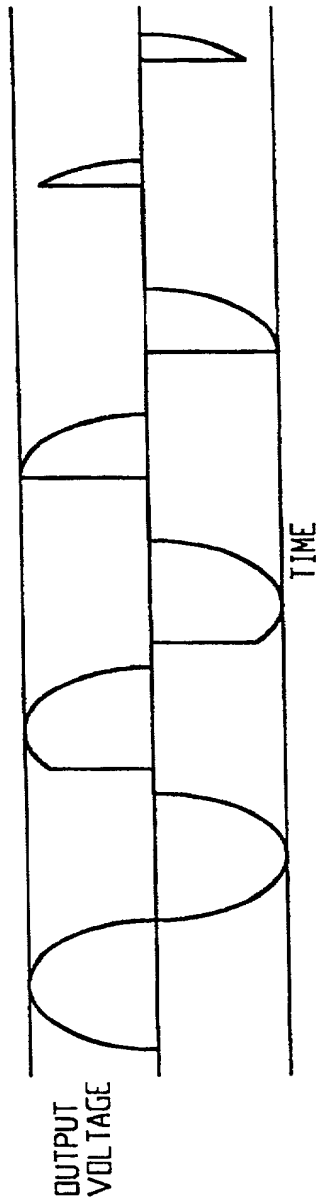


Fig. 2

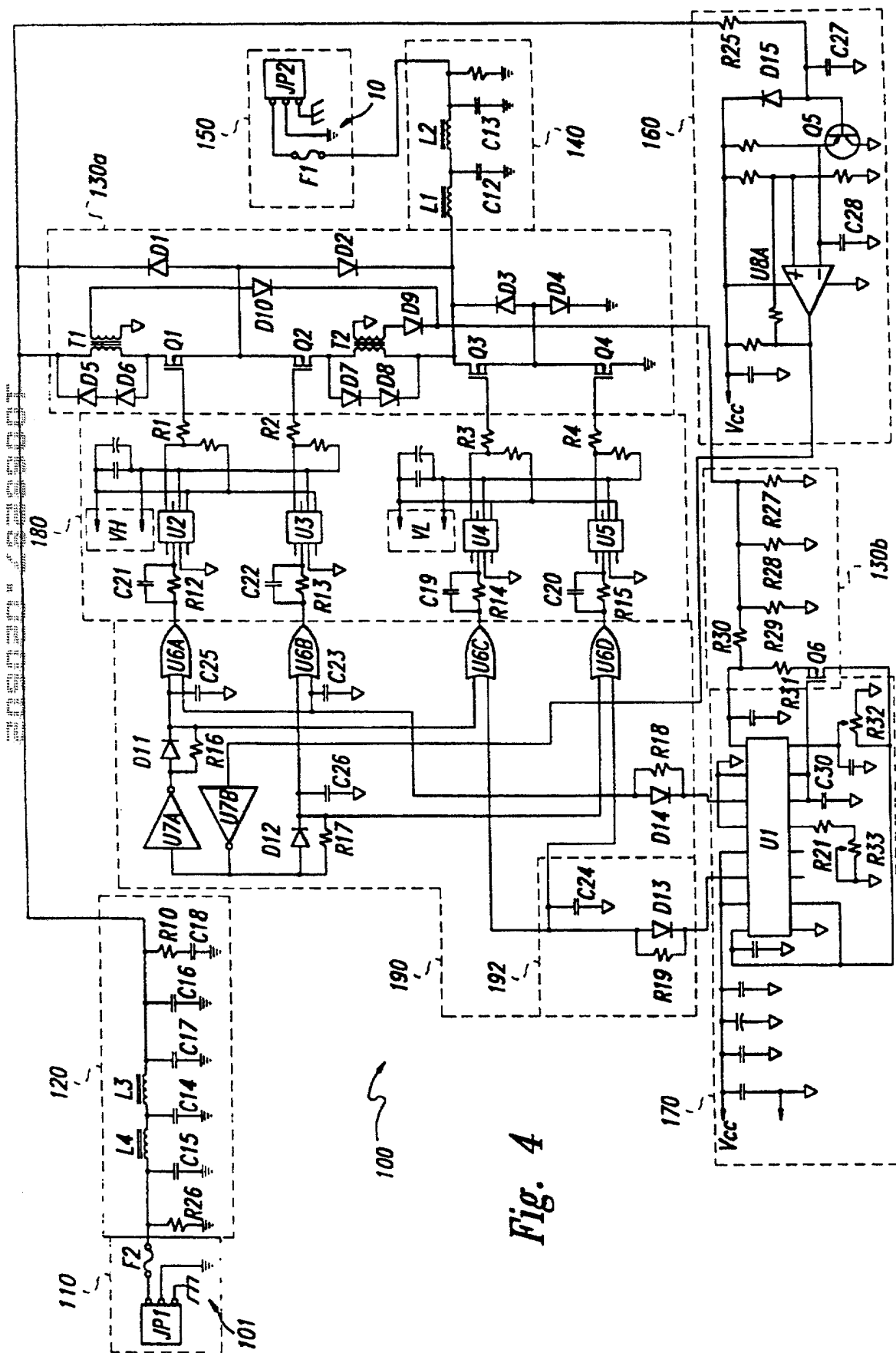


Fig. 4

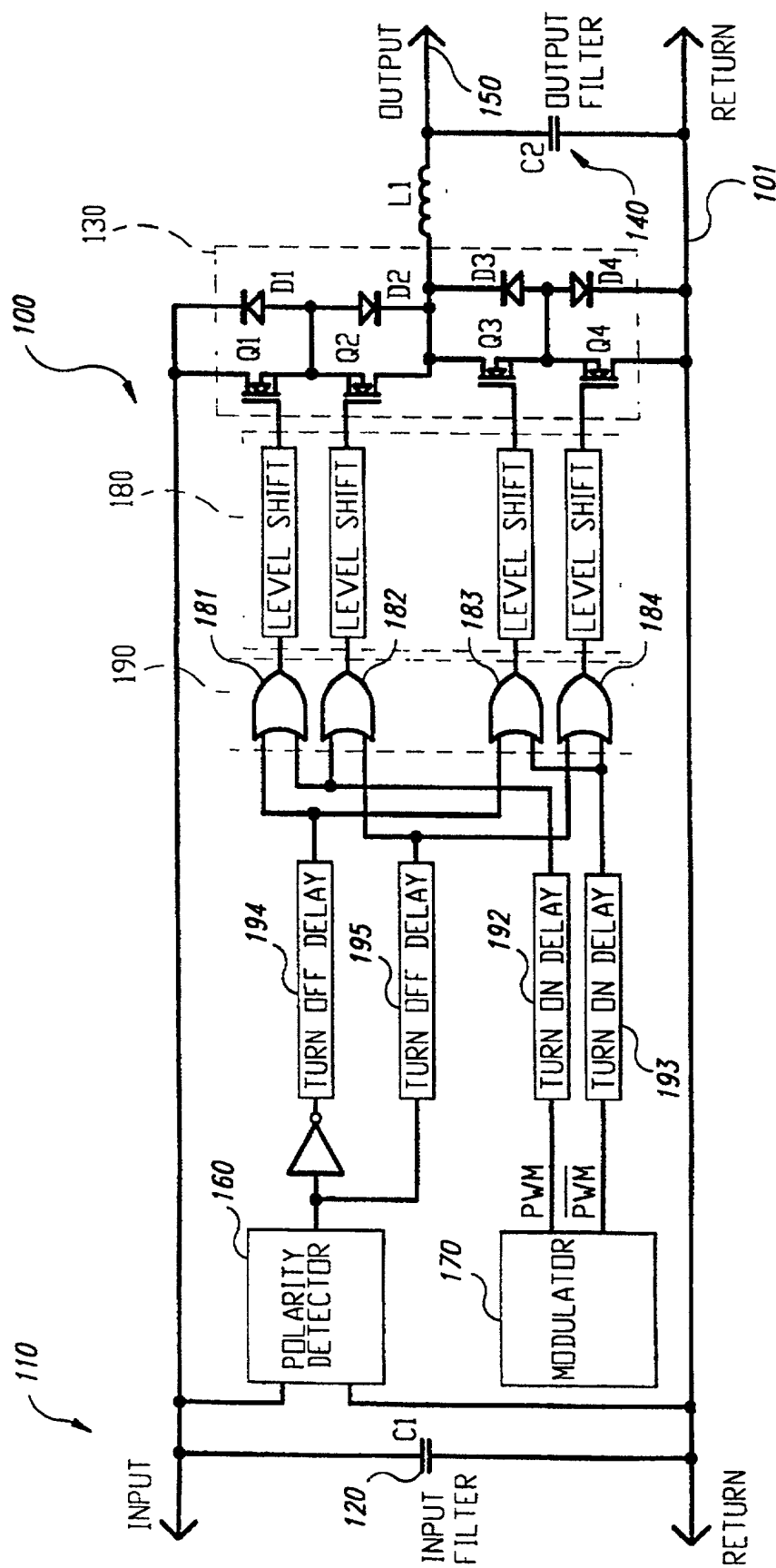


Fig. 5

FIG. 6A is a schematic diagram of a power converter 100. The power converter 100 includes an input filter C1, a polarity detector 160, a control logic 190, a modulator 170, and an output filter C2. The input filter C1 is connected to the input and return lines. The polarity detector 160 is connected to the input line and provides a signal to the control logic 190. The control logic 190 is connected to the gates of four MOSFETs Q1, Q2, Q3, and Q4. The MOSFETs Q1 and Q2 are connected in series between the input line and the output line, and the MOSFETs Q3 and Q4 are connected in series between the output line and the return line. The output filter C2 is connected to the output line and the return line. The power converter 100 is configured to convert the input voltage to the output voltage.

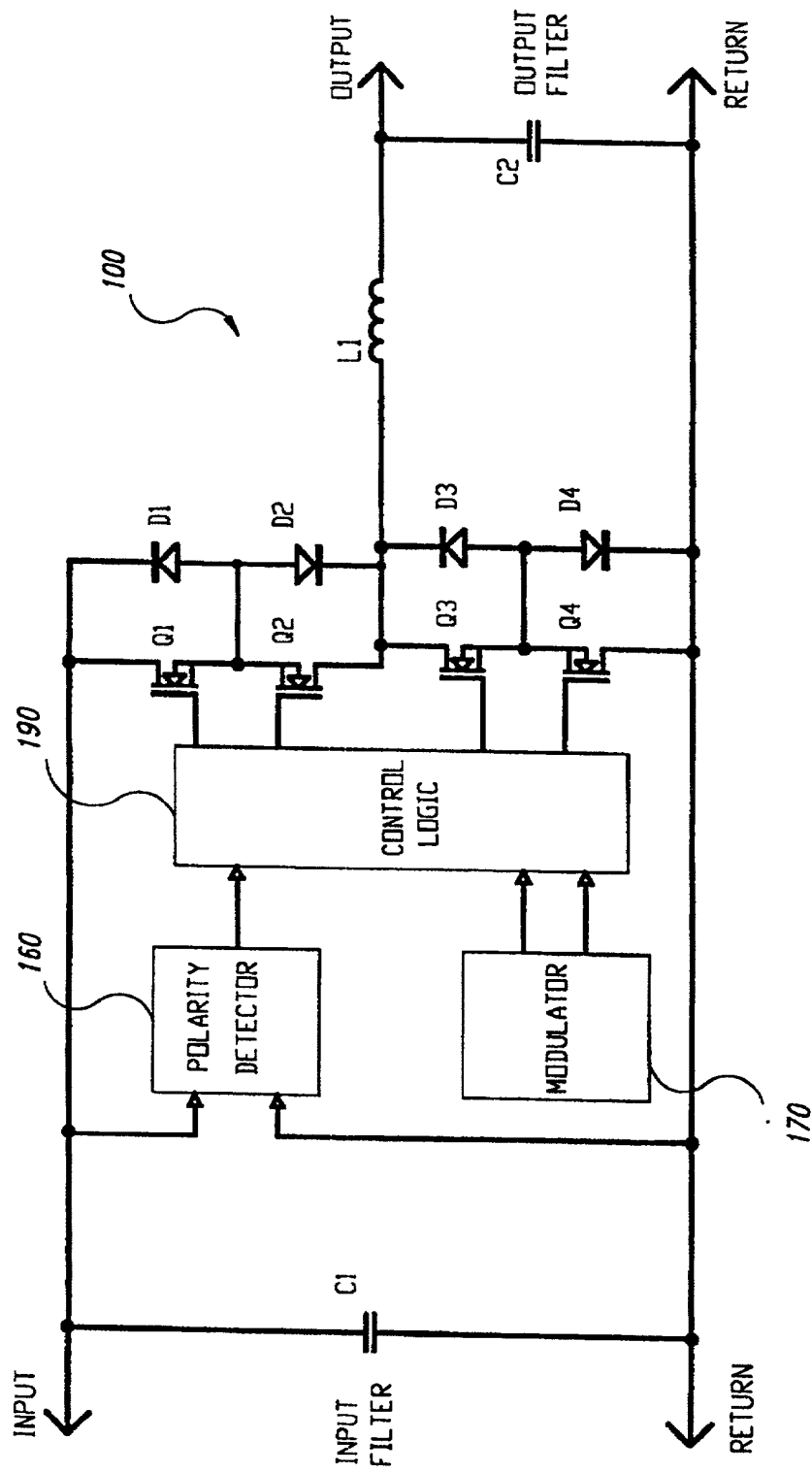


Fig. 6A

FIG. 6B is a schematic diagram of a power converter 100. The power converter 100 includes an input filter 110, a bridge rectifier 120, a control logic 130, a polarity detector 140, a modulator 150, and an output filter 160. The input filter 110 includes an inductor L1 and a capacitor C1. The bridge rectifier 120 includes four diodes D1, D2, D3, and D4. The control logic 130 is connected to the bridge rectifier 120 and the polarity detector 140. The polarity detector 140 is connected to the modulator 150. The modulator 150 is connected to the bridge rectifier 120. The output filter 160 includes a capacitor C2. The power converter 100 is connected to an input and a return. The output of the power converter 100 is connected to an output and a return.

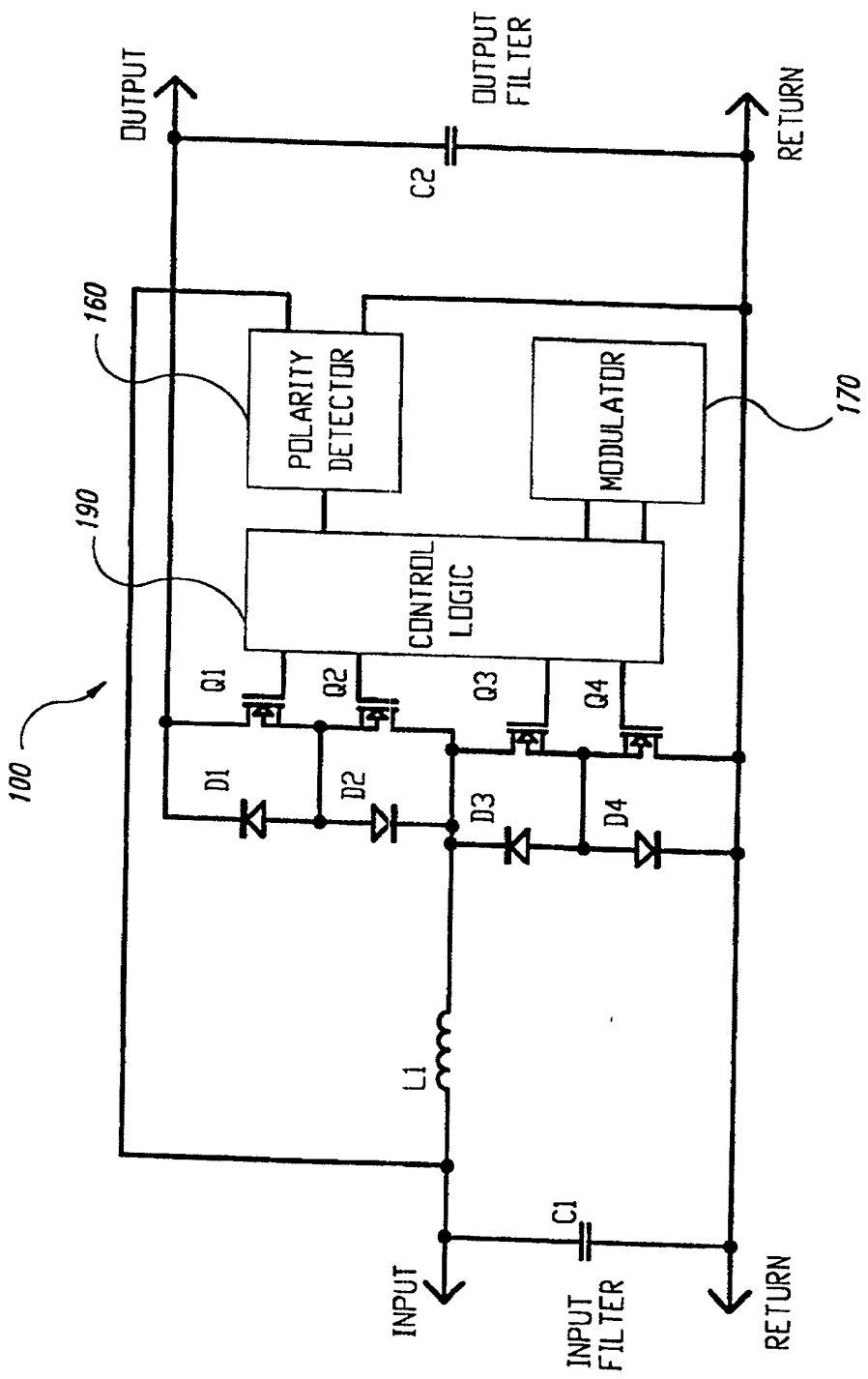


Fig. 6B

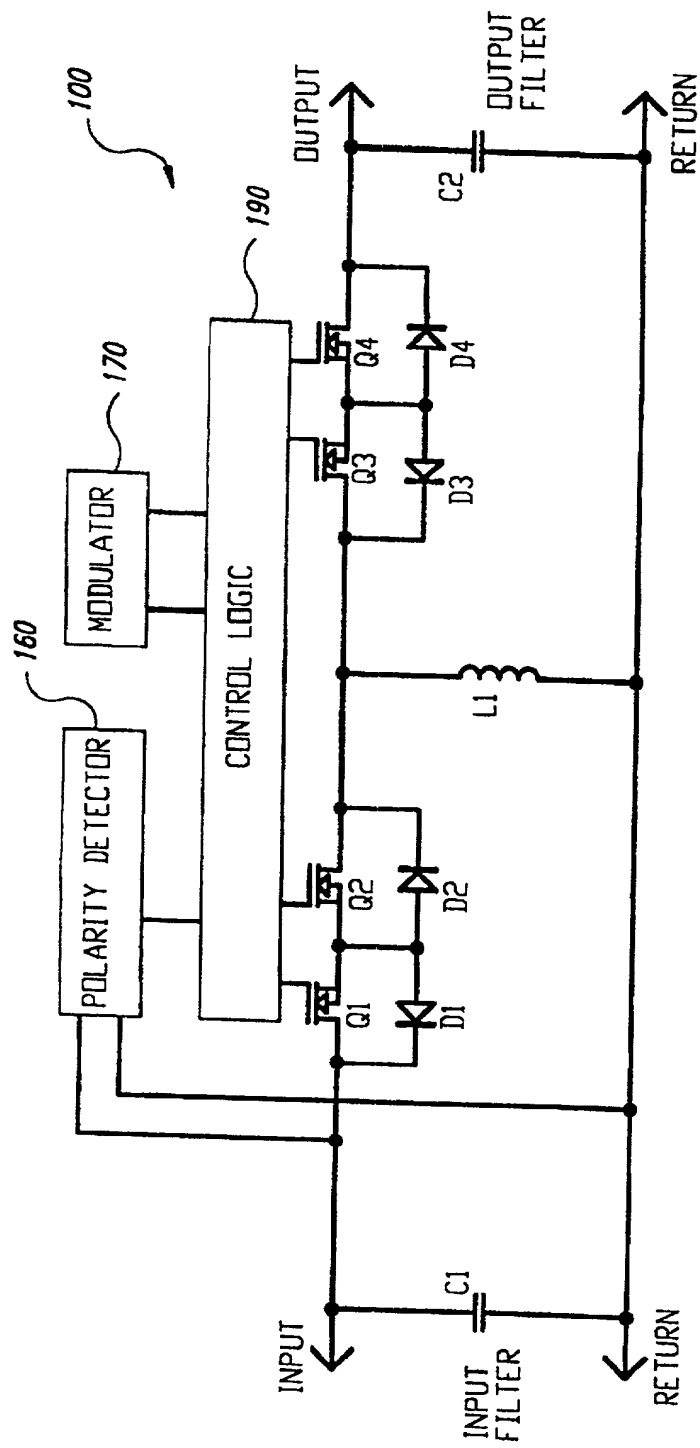


Fig. 6C

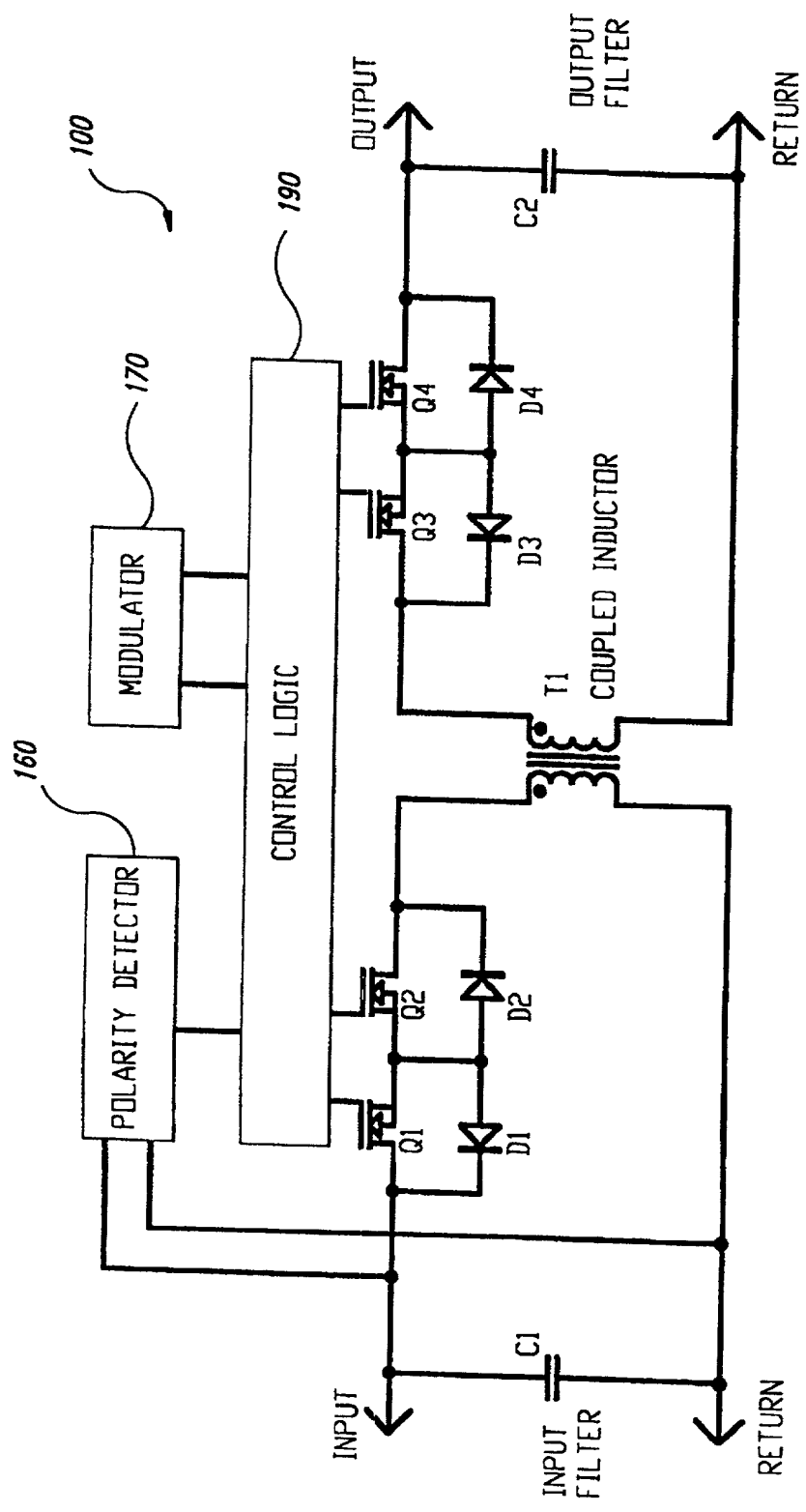


Fig. 6D

FIG. 7A is a schematic diagram of a power converter 100. The power converter 100 includes an input filter, a polarity detector 160, a control logic 190, a modulator 170, and an output filter. The input filter is connected to the input and return lines. The polarity detector 160 is connected to the input line and the control logic 190. The control logic 190 is connected to the modulator 170 and the output filter. The modulator 170 is connected to the output filter. The output filter is connected to the output and return lines. The power converter 100 also includes a bridge rectifier with four diodes D1, D2, D3, and D4, and four transistors Q1, Q2, Q3, and Q4. The bridge rectifier is connected to the input and output lines. The transistors Q1, Q2, Q3, and Q4 are connected to the control logic 190 and the bridge rectifier. The power converter 100 also includes inductors L1A and L1B, and capacitors C1, C2, and C3.

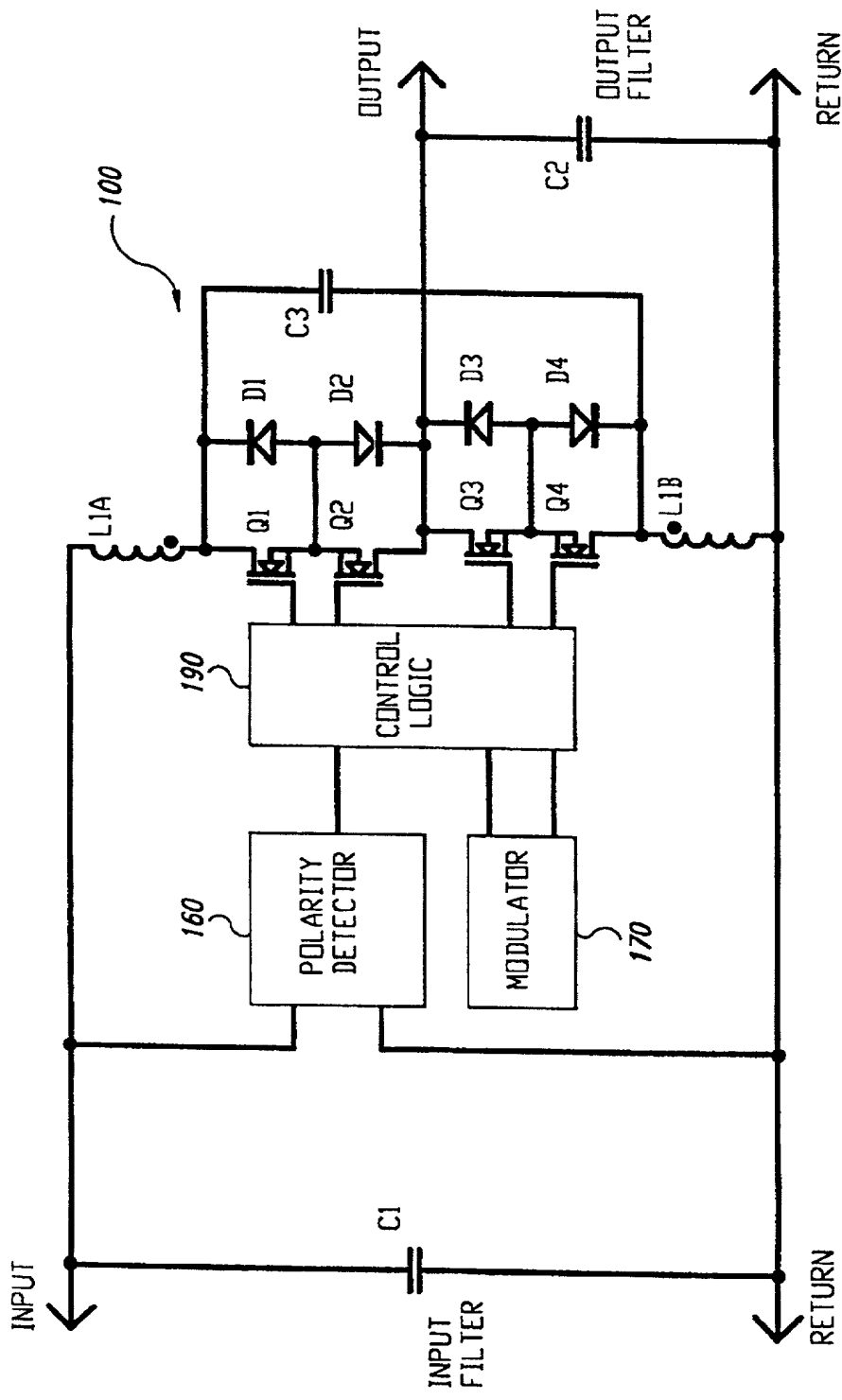


Fig. 7A

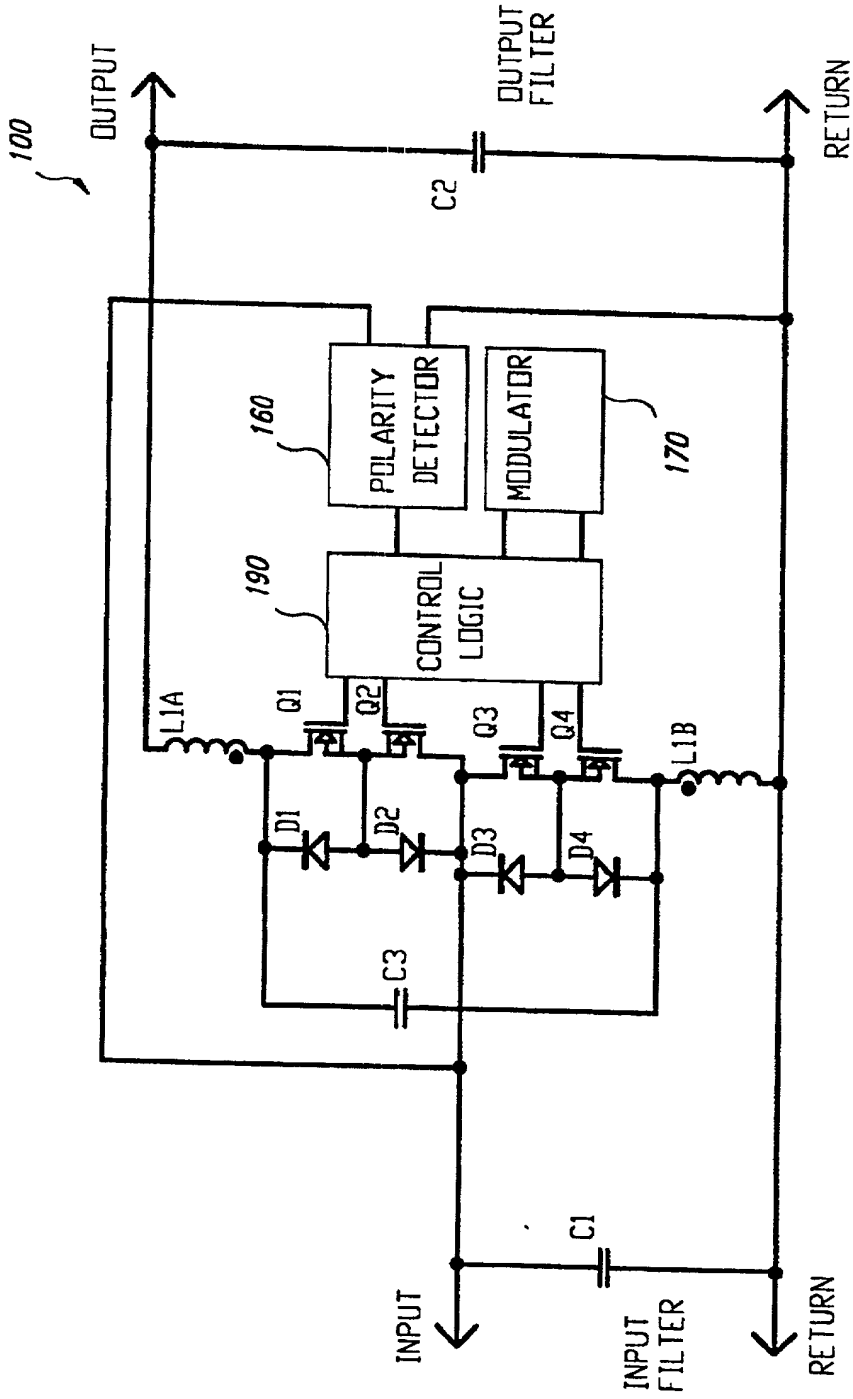


Fig. 7B

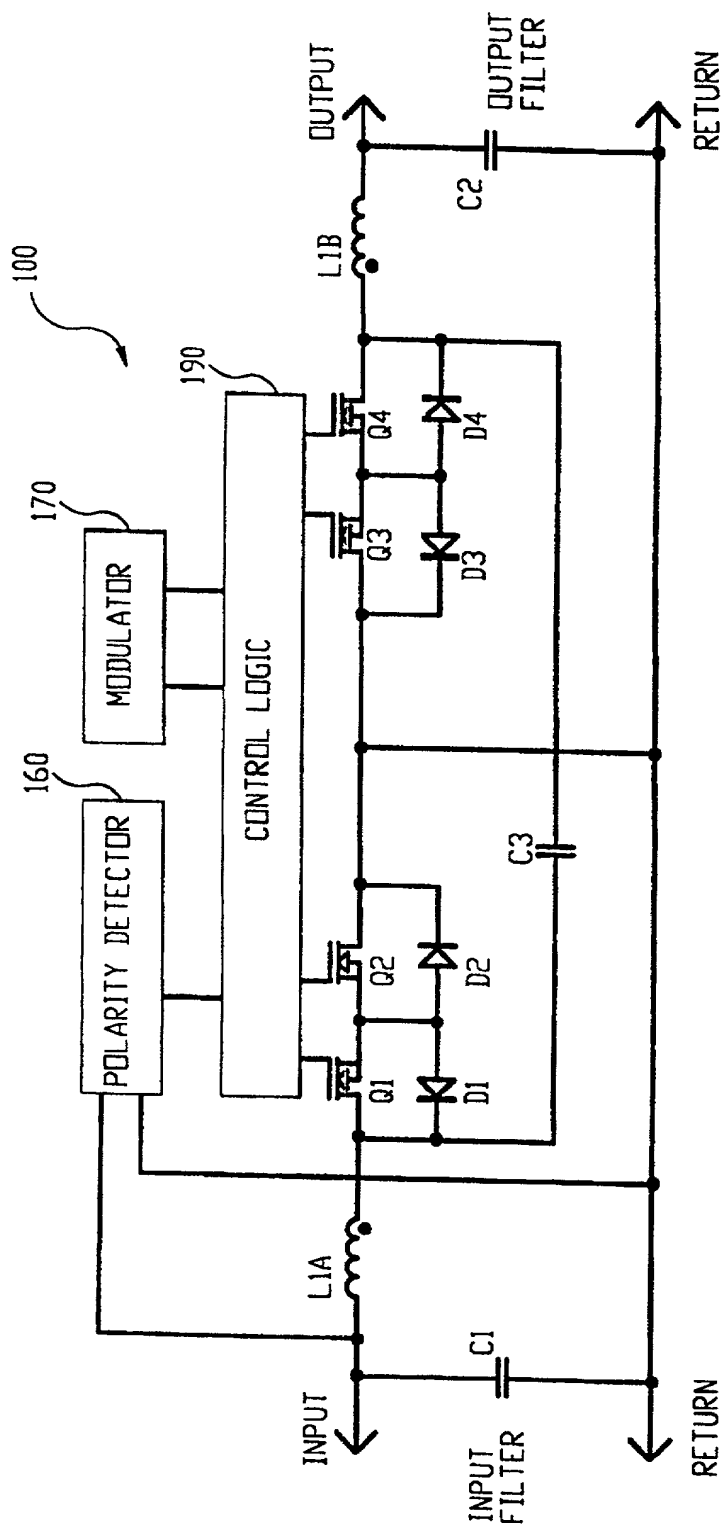


Fig. 7C

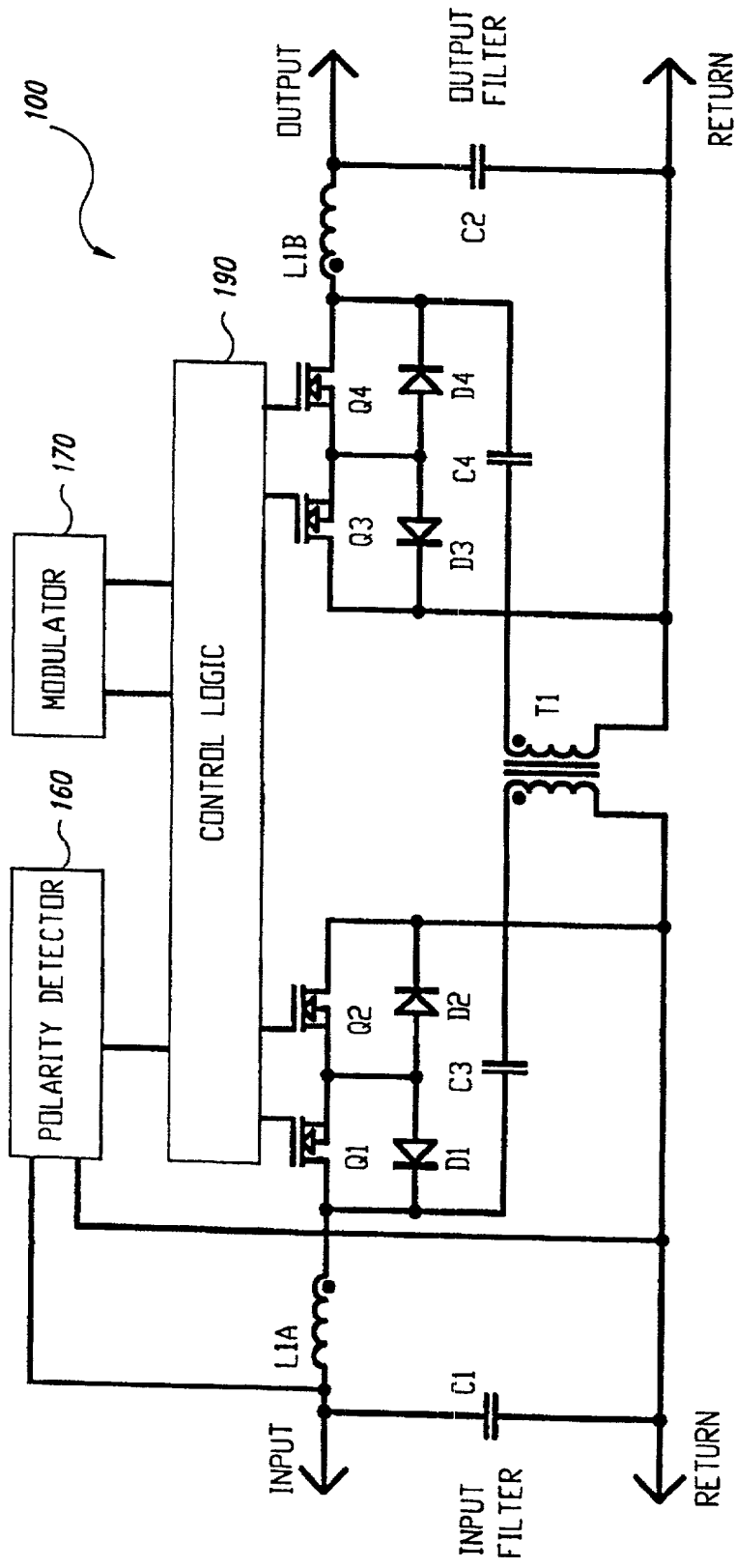


Fig. 7D

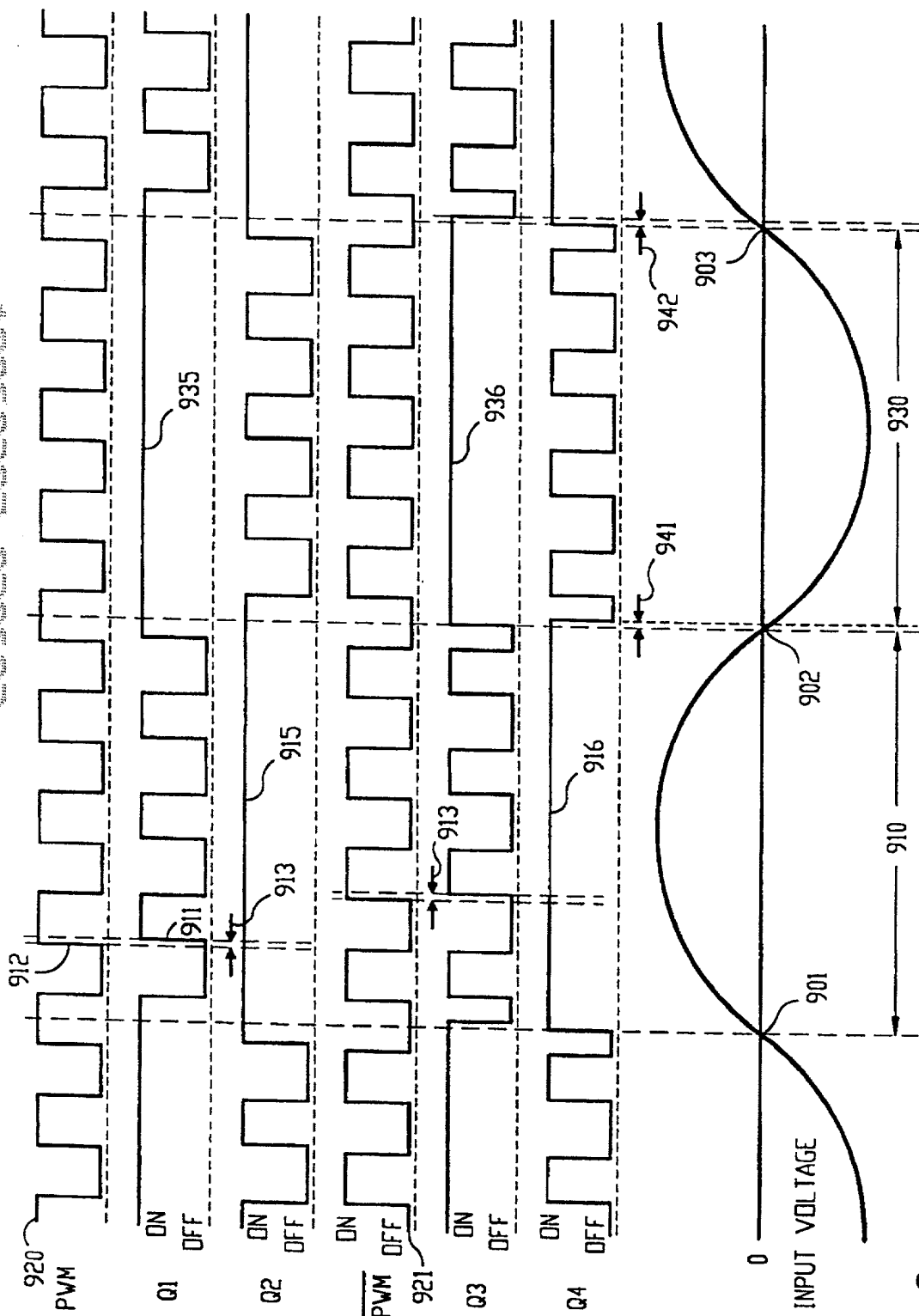


Fig. 8

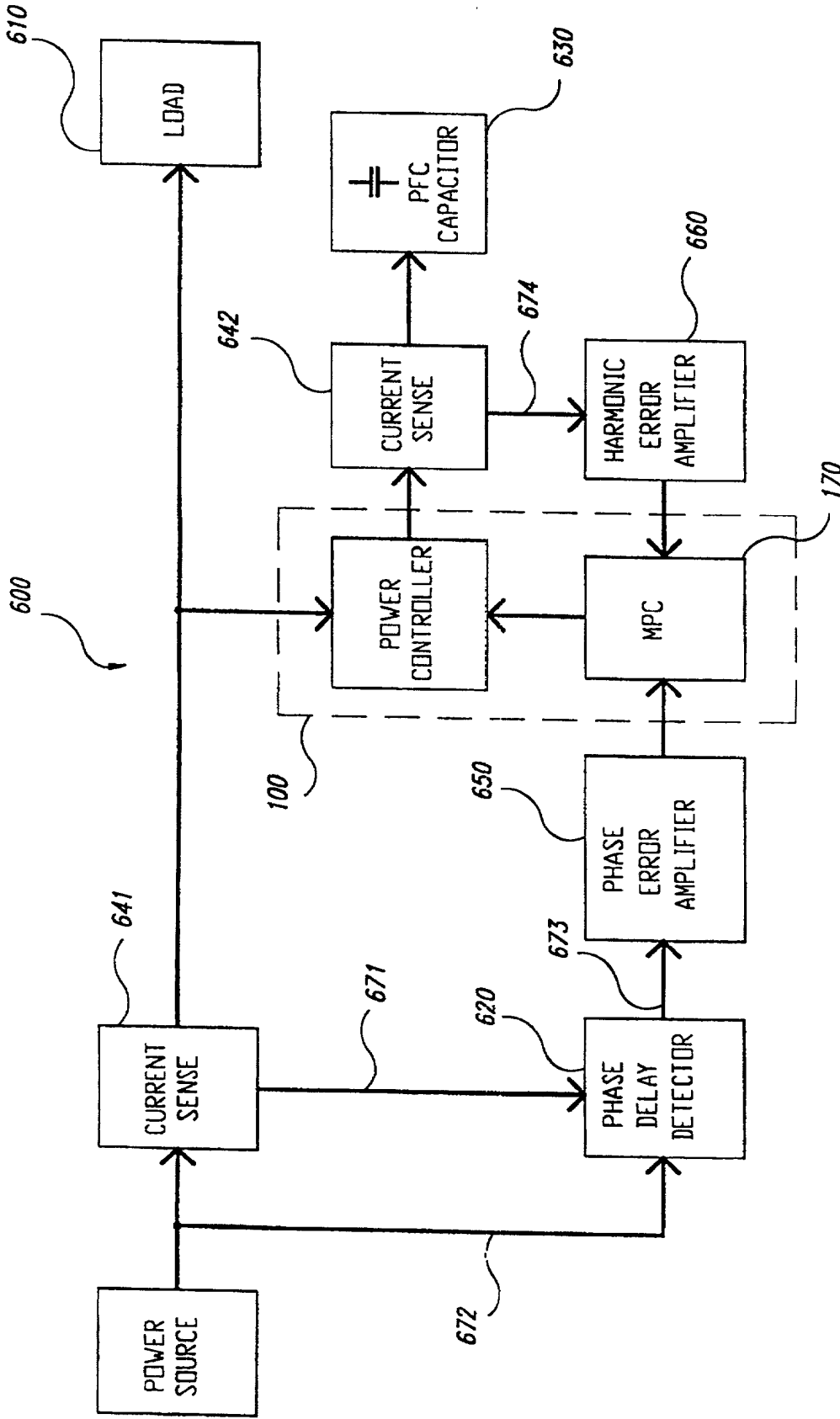


Fig. 10

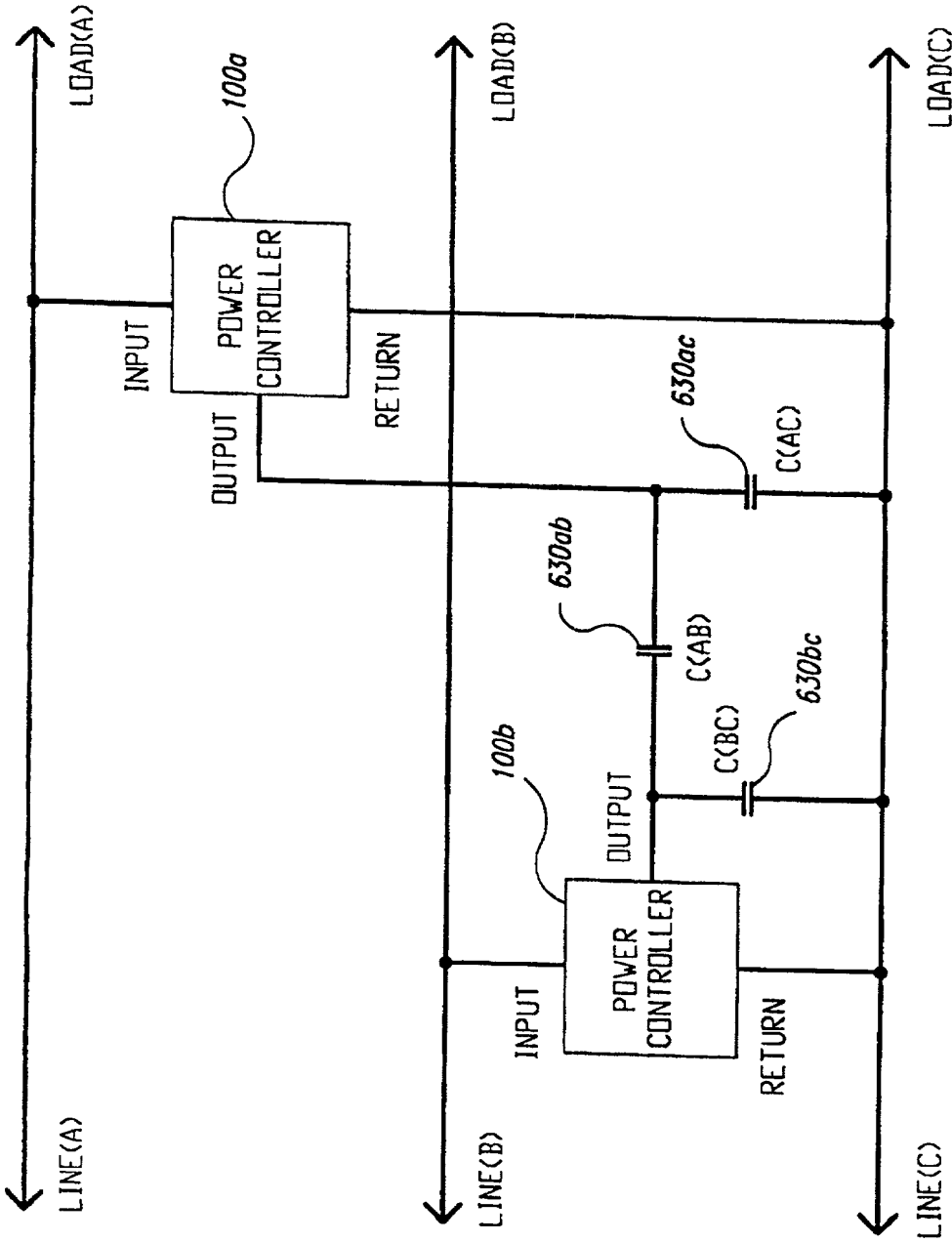
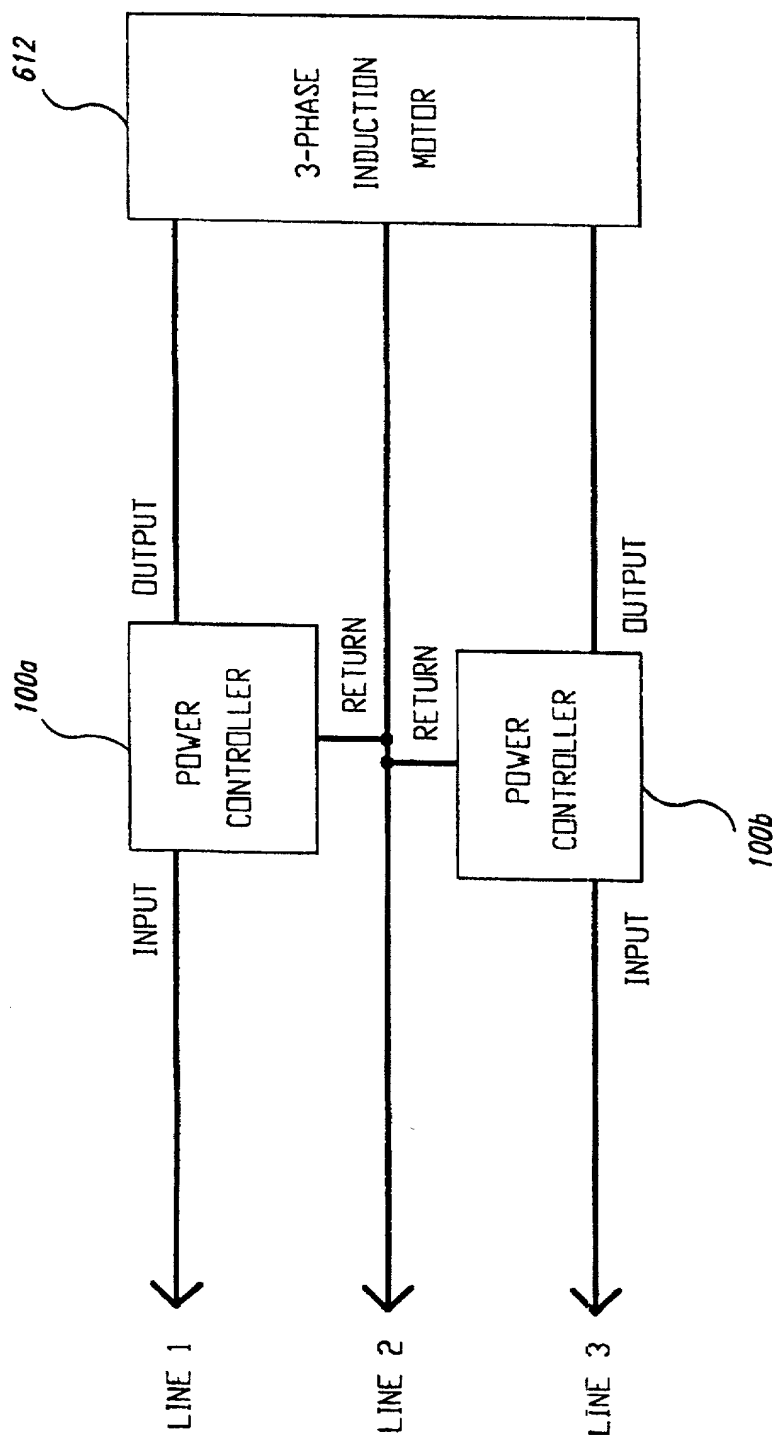


Fig. 11



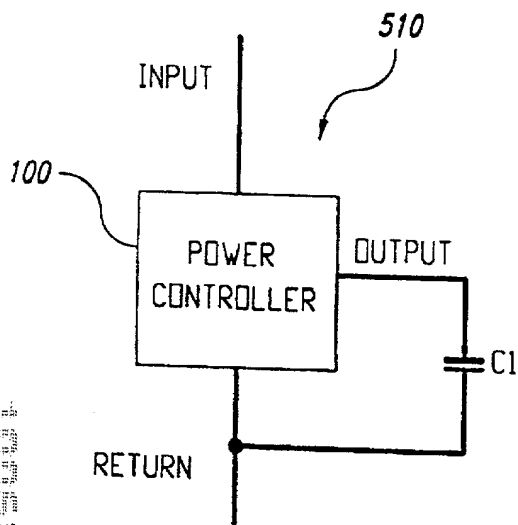


Fig. 13

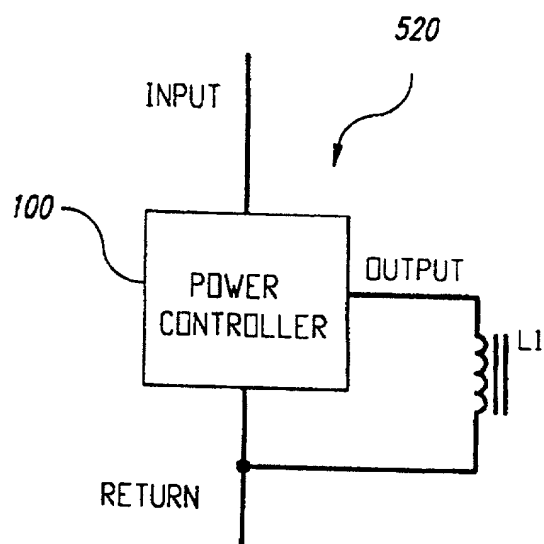


Fig. 14

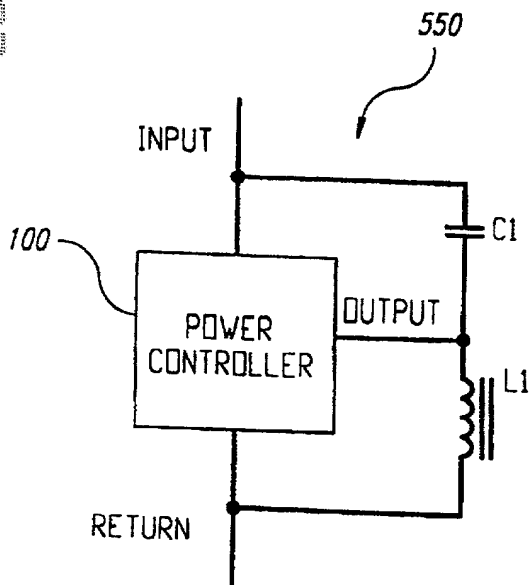


Fig. 15

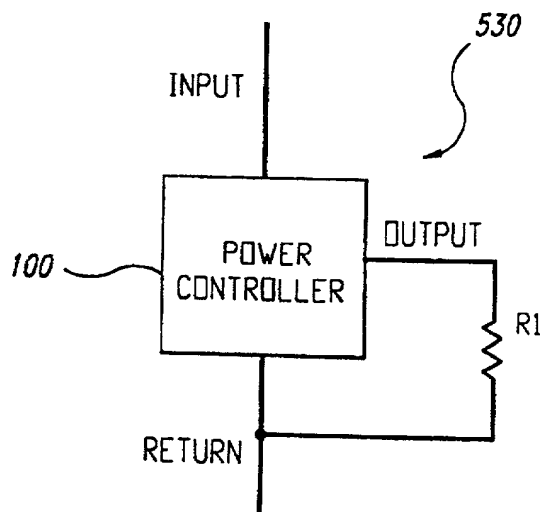


Fig. 16

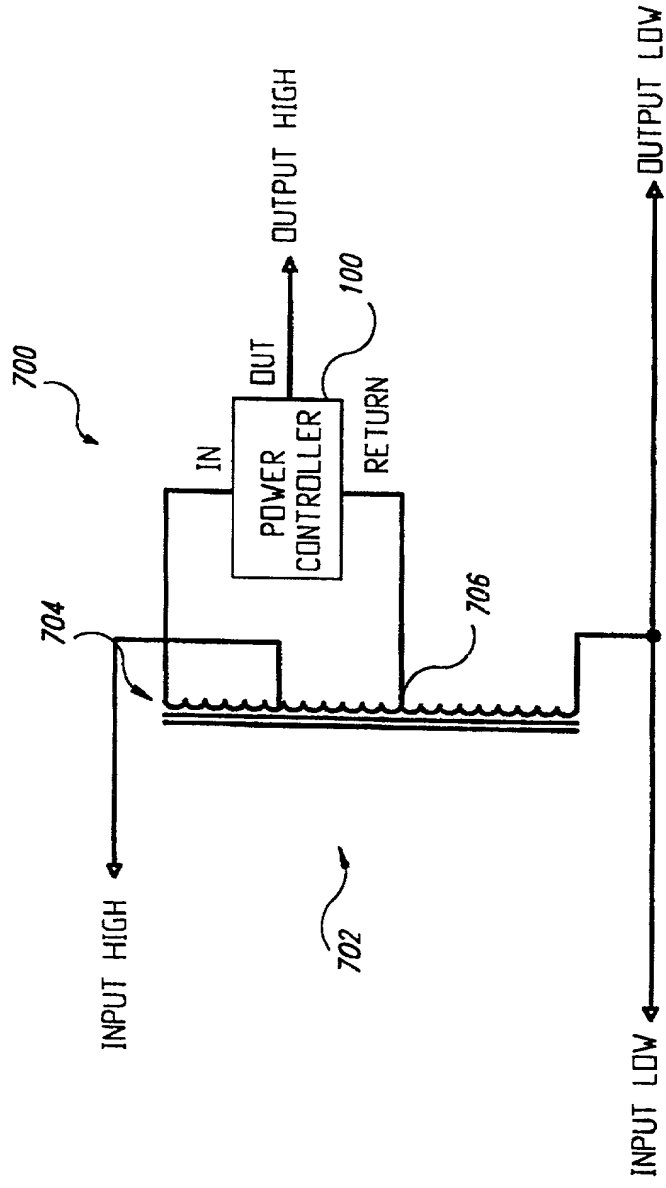


Fig. 17

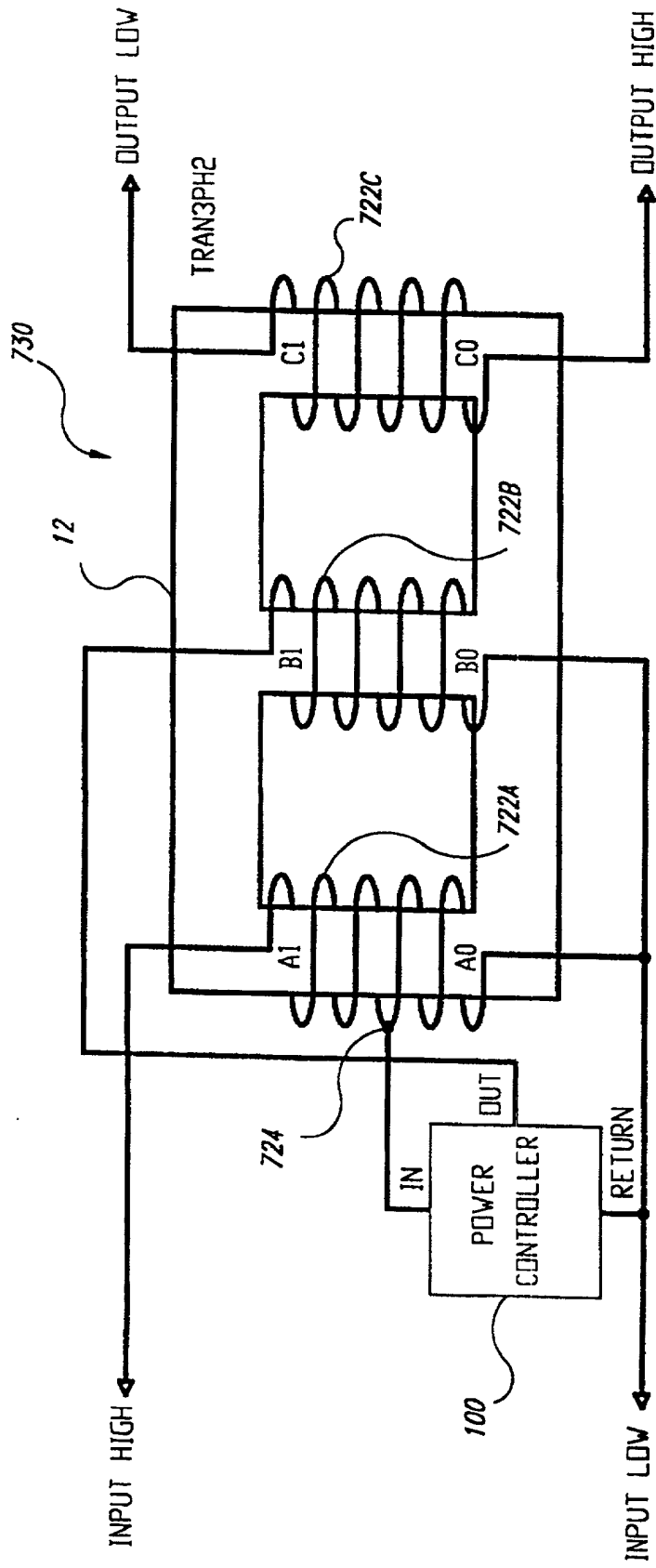


Fig. 19

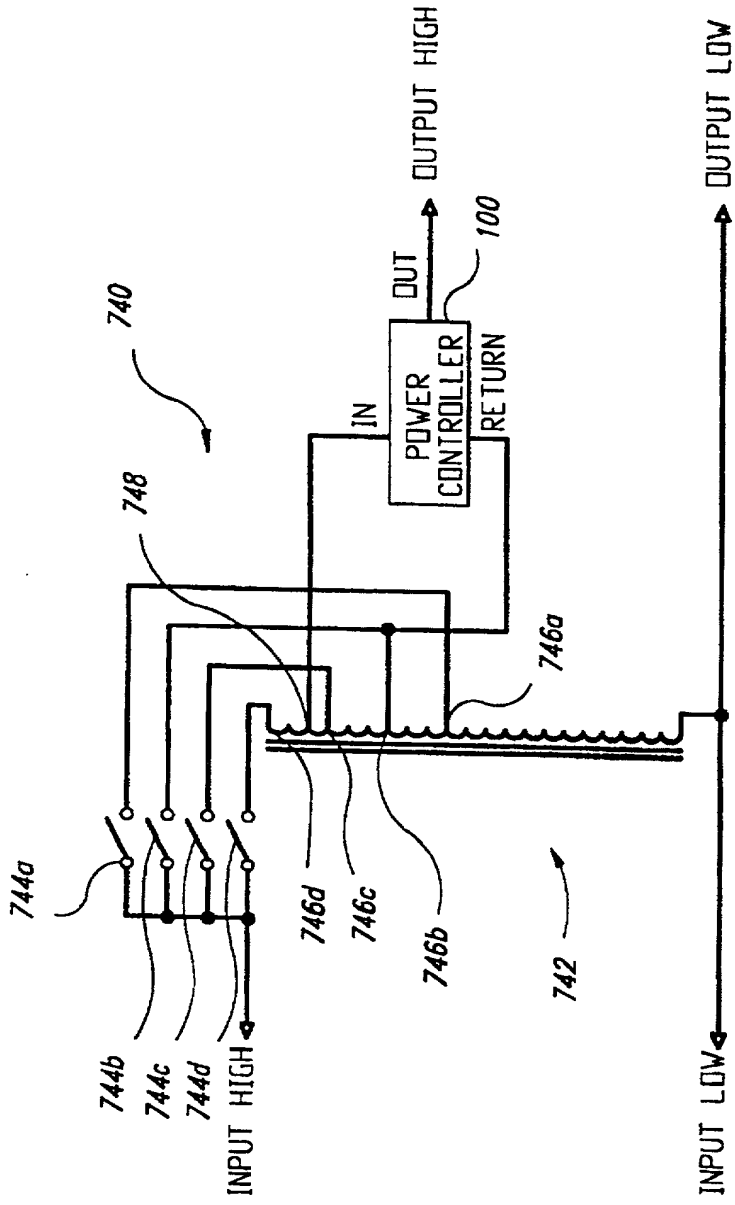


Fig. 20

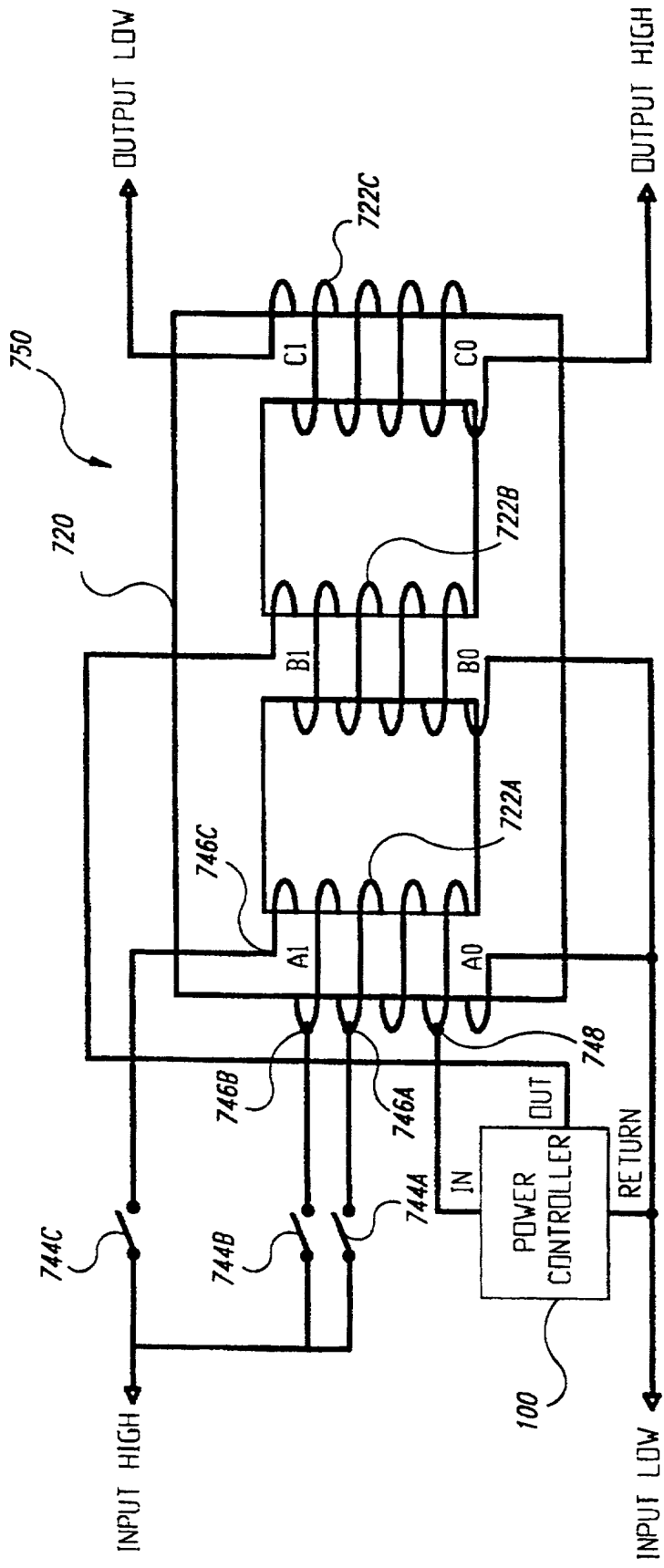


Fig. 21

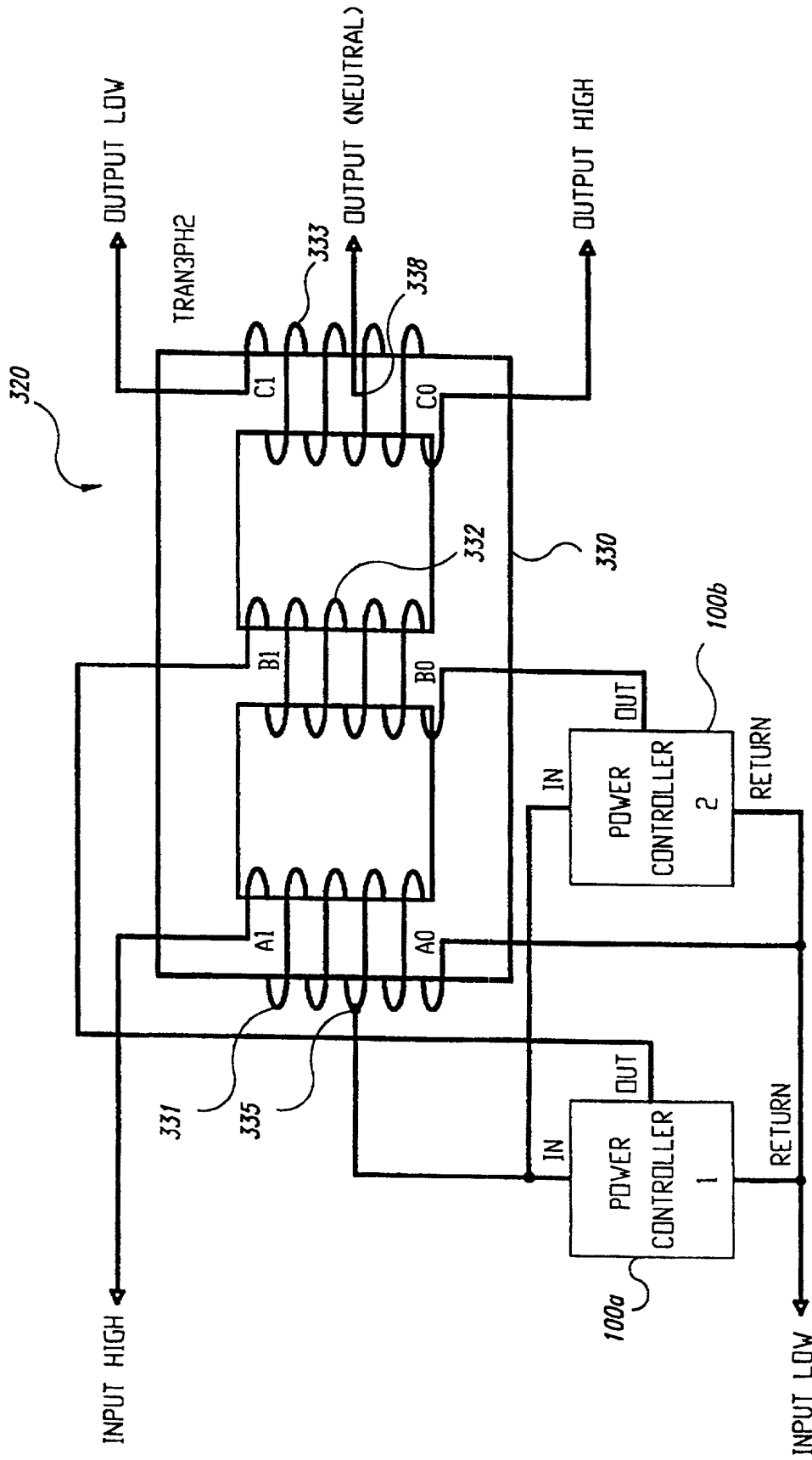


Fig. 23

FIG. 24 is a schematic diagram of a power supply system 400. The system includes a power controller 100, a load 410, and a filter 430. The power controller 100 has an input IN and an output OUT. The load 410 is connected to the output OUT of the power controller 100. The filter 430 is connected to the output OUT of the power controller 100. The filter 430 is optional. The system is powered by an input HIGH and an input LOW. The input HIGH is connected to the input IN of the power controller 100. The input LOW is connected to the return of the power controller 100. The filter 430 is connected to the output OUT of the power controller 100. The load 410 is connected to the output OUT of the power controller 100. The filter 430 is optional. The system is powered by an input HIGH and an input LOW. The input HIGH is connected to the input IN of the power controller 100. The input LOW is connected to the return of the power controller 100. The filter 430 is connected to the output OUT of the power controller 100. The load 410 is connected to the output OUT of the power controller 100. The filter 430 is optional.

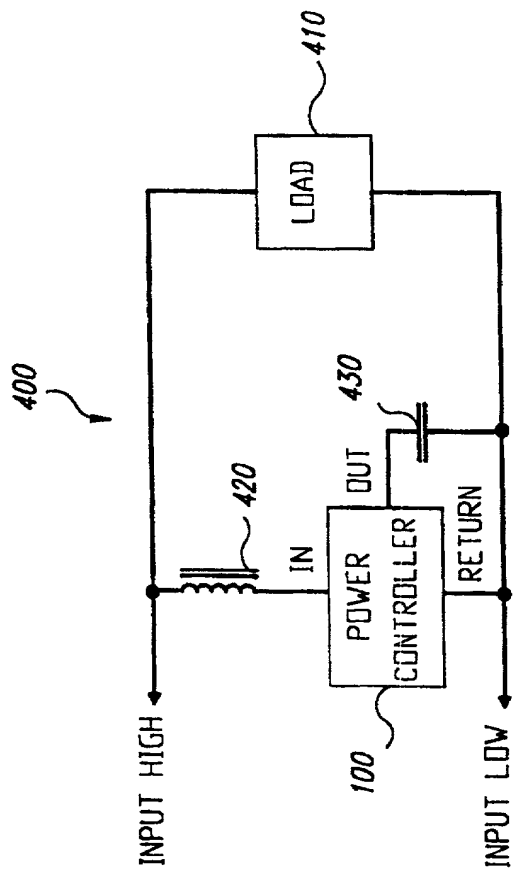


Fig. 24

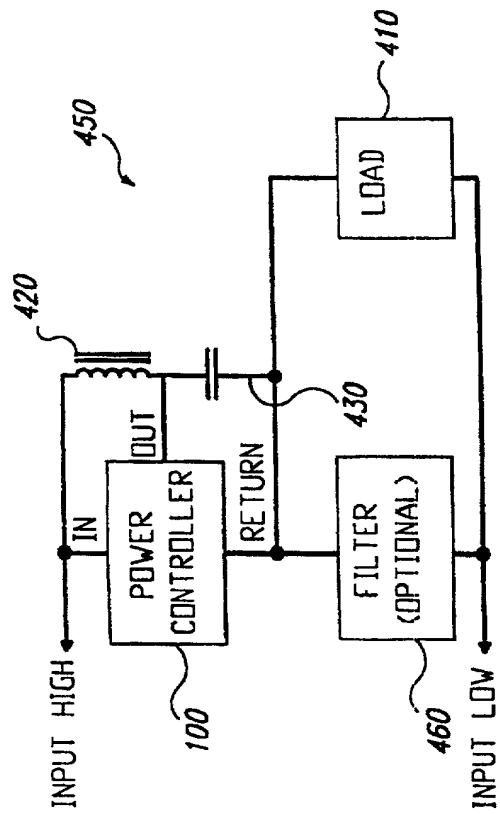


Fig. 25



Fig. 26A

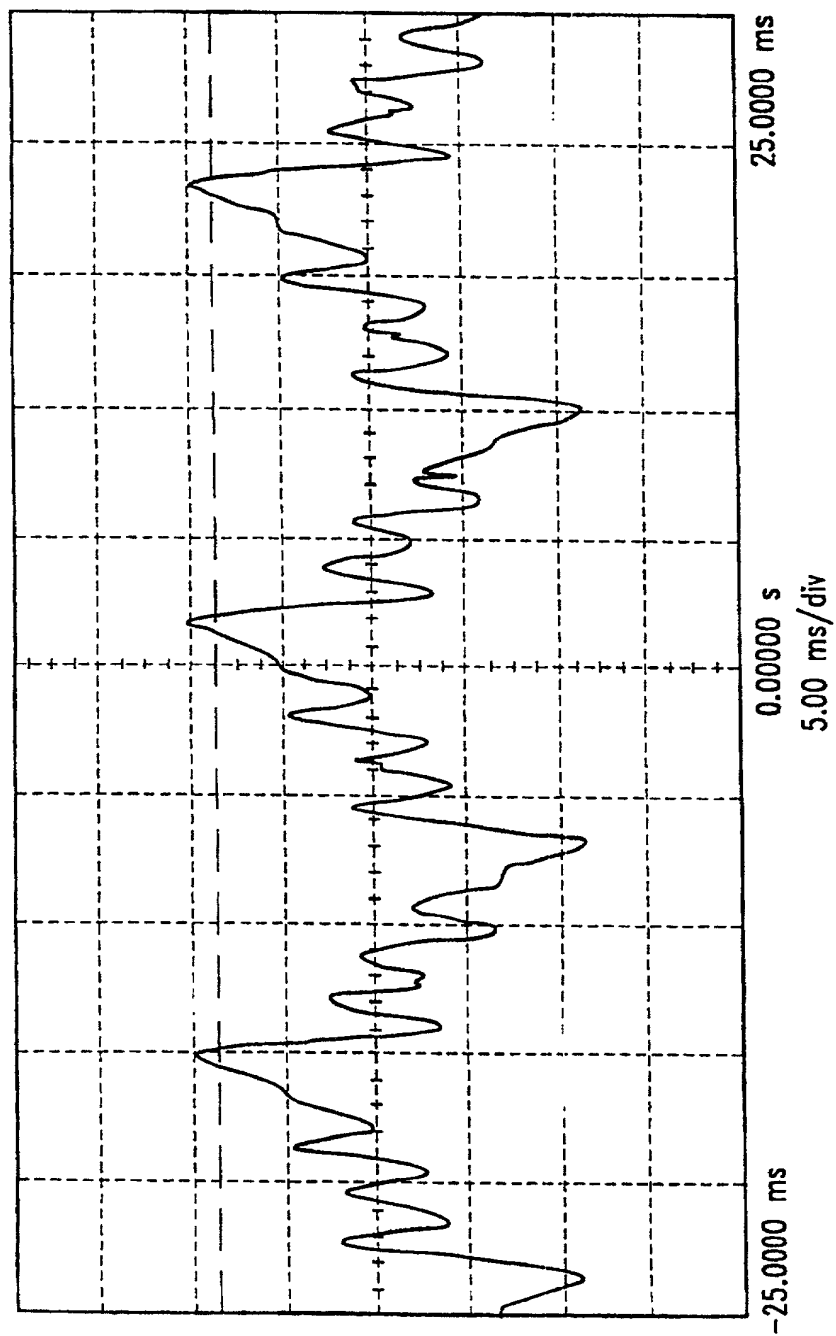


Fig. 26B

0.00000 s
5.00 ms/div

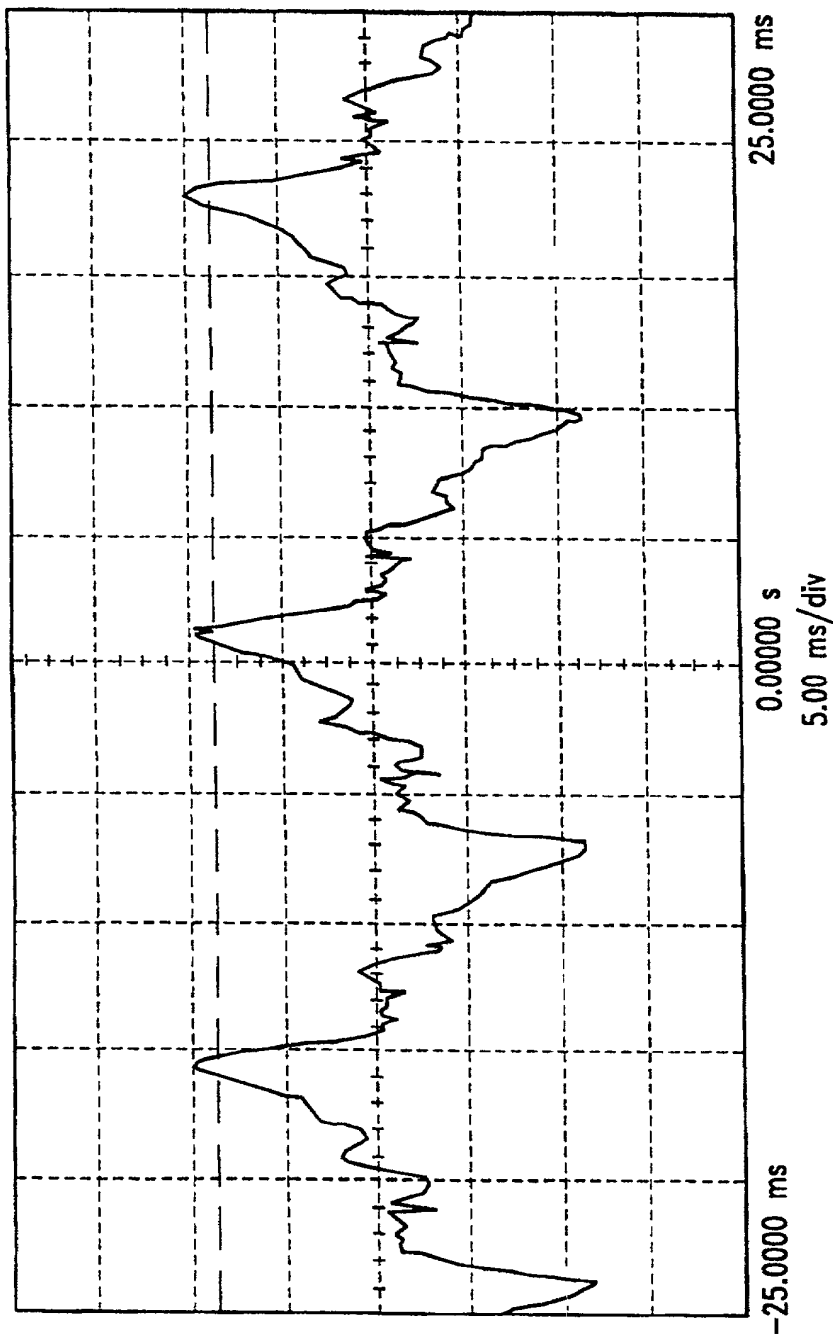


Fig. 26C

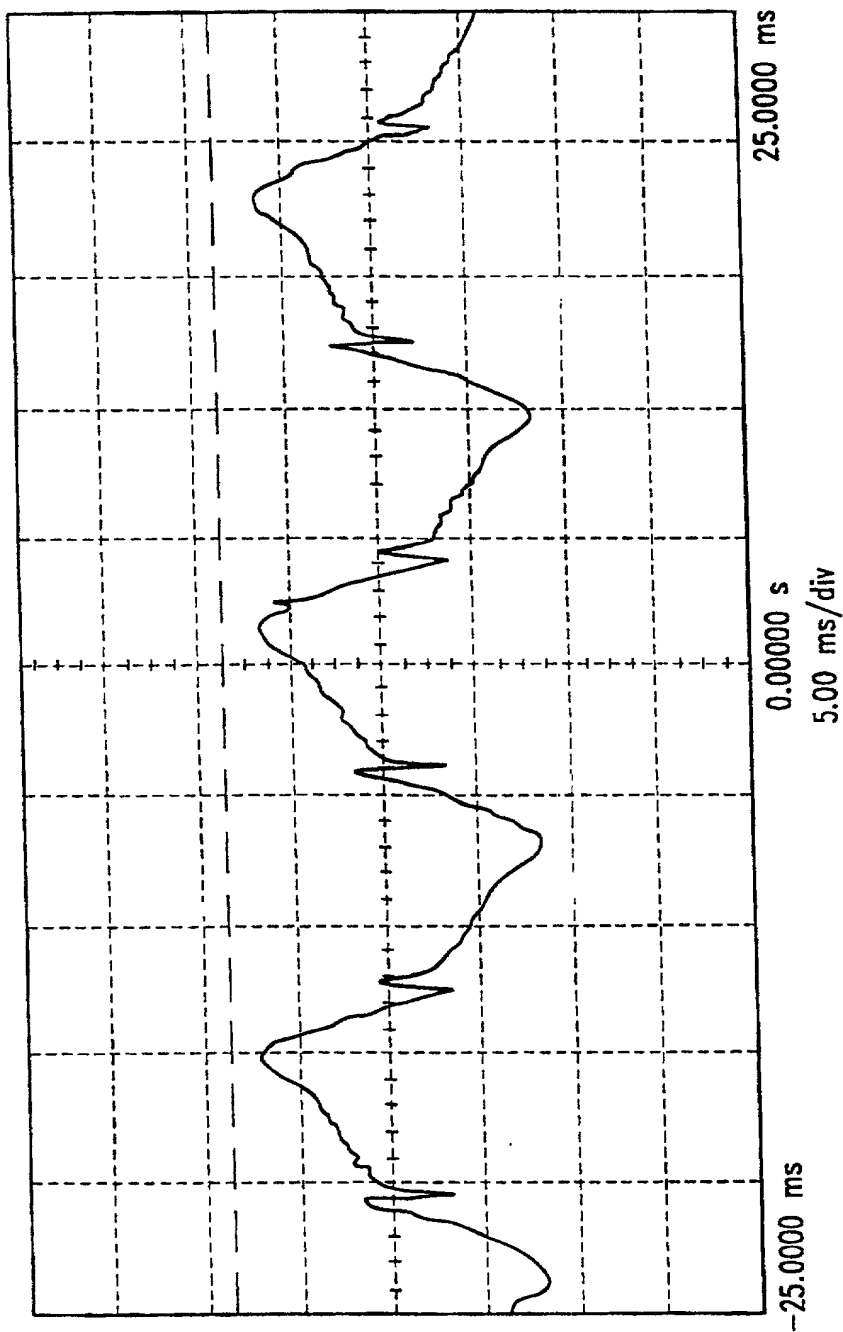


Fig. 26E

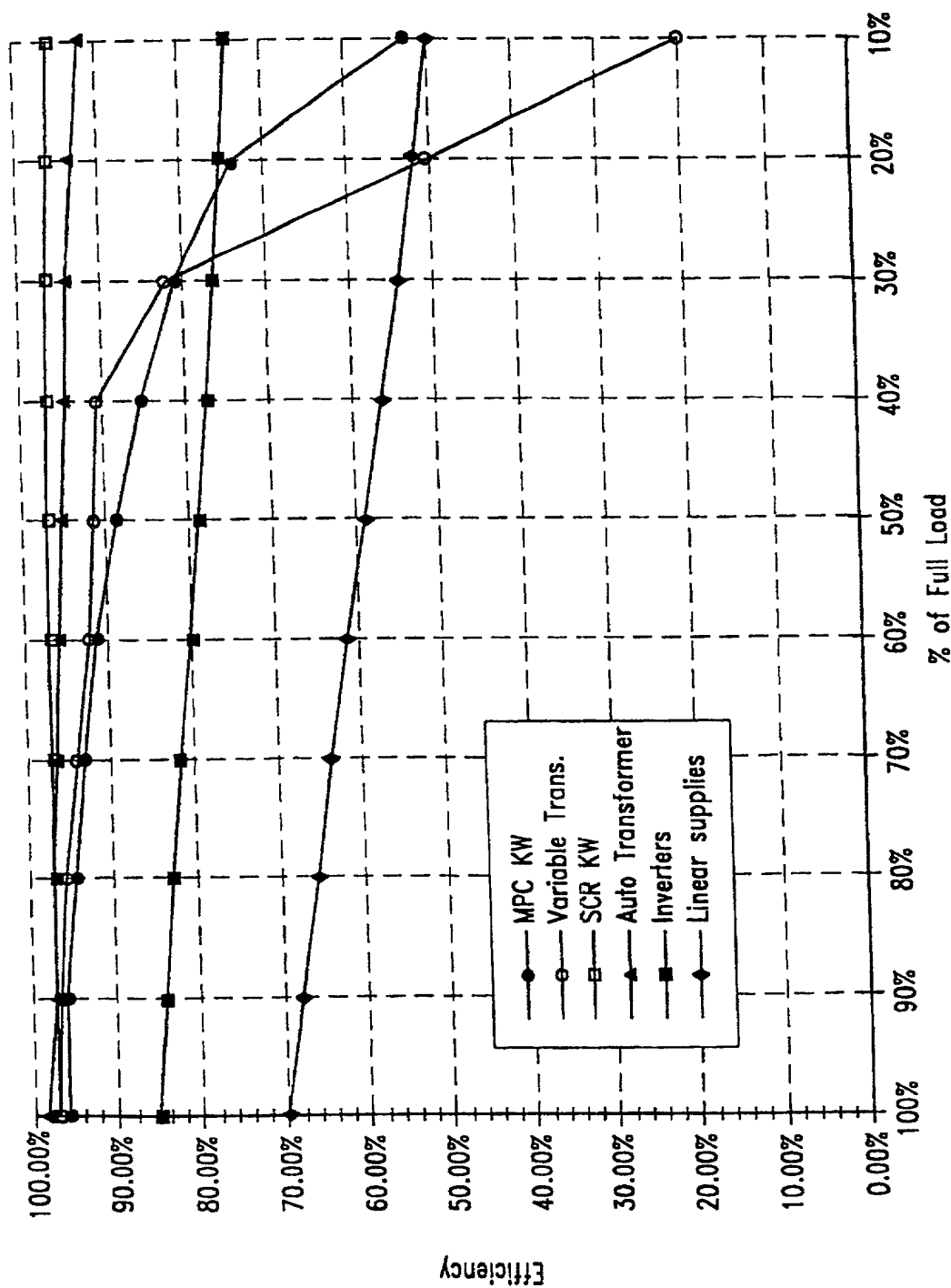


Fig. 28

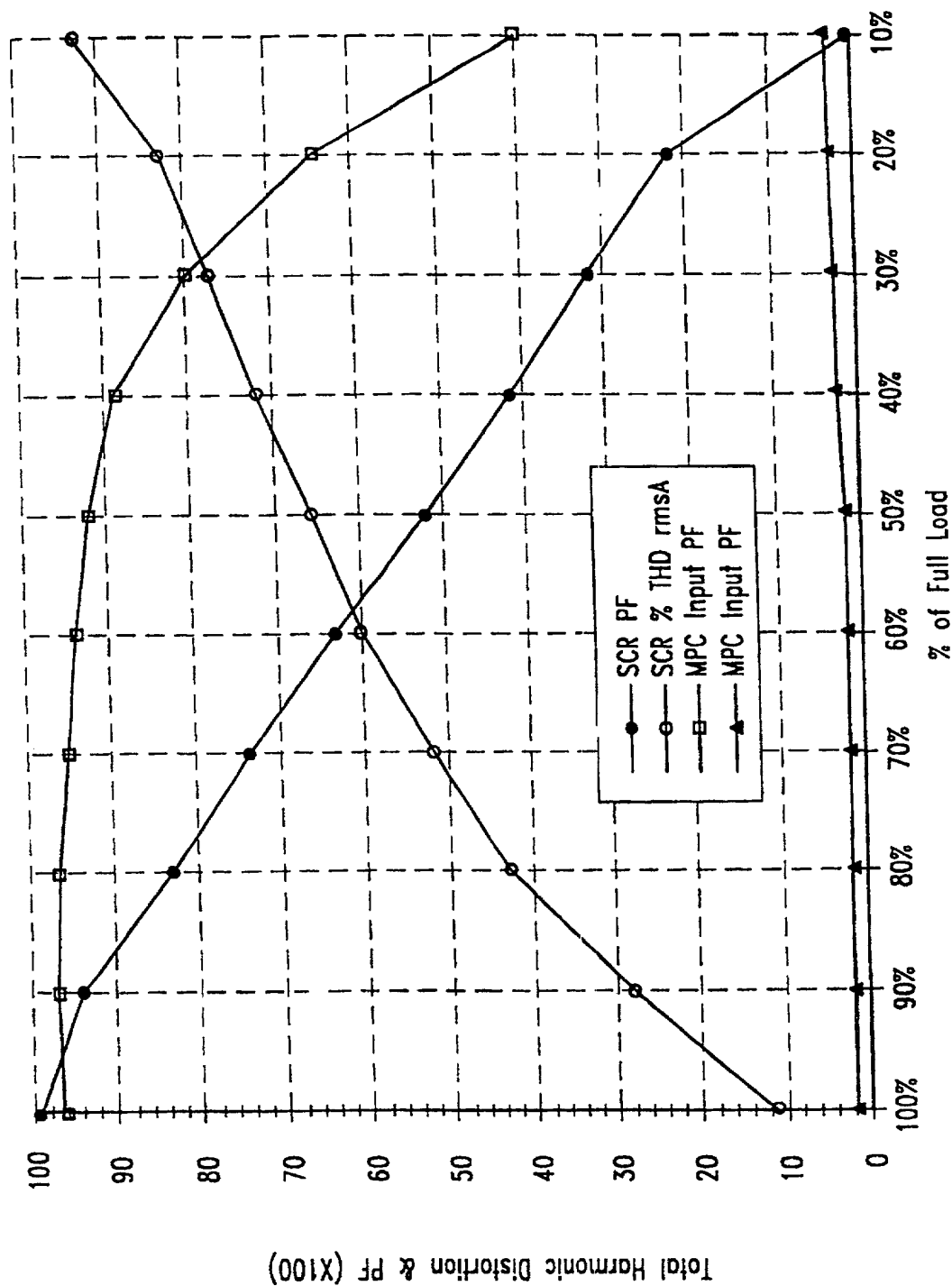


Fig. 29

FIG. 30 is a schematic diagram of a power converter circuit 100. The circuit includes an input 110, an input filter 120, a voltage polarity detector 160, a control logic block 190, a modulator 170, a control input 210, four level shifters 180, four MOSFETs Q1-Q4, four diodes D1-D4, an inductor L1, an output filter 140, and an output 150. The circuit is connected to a return line 170.

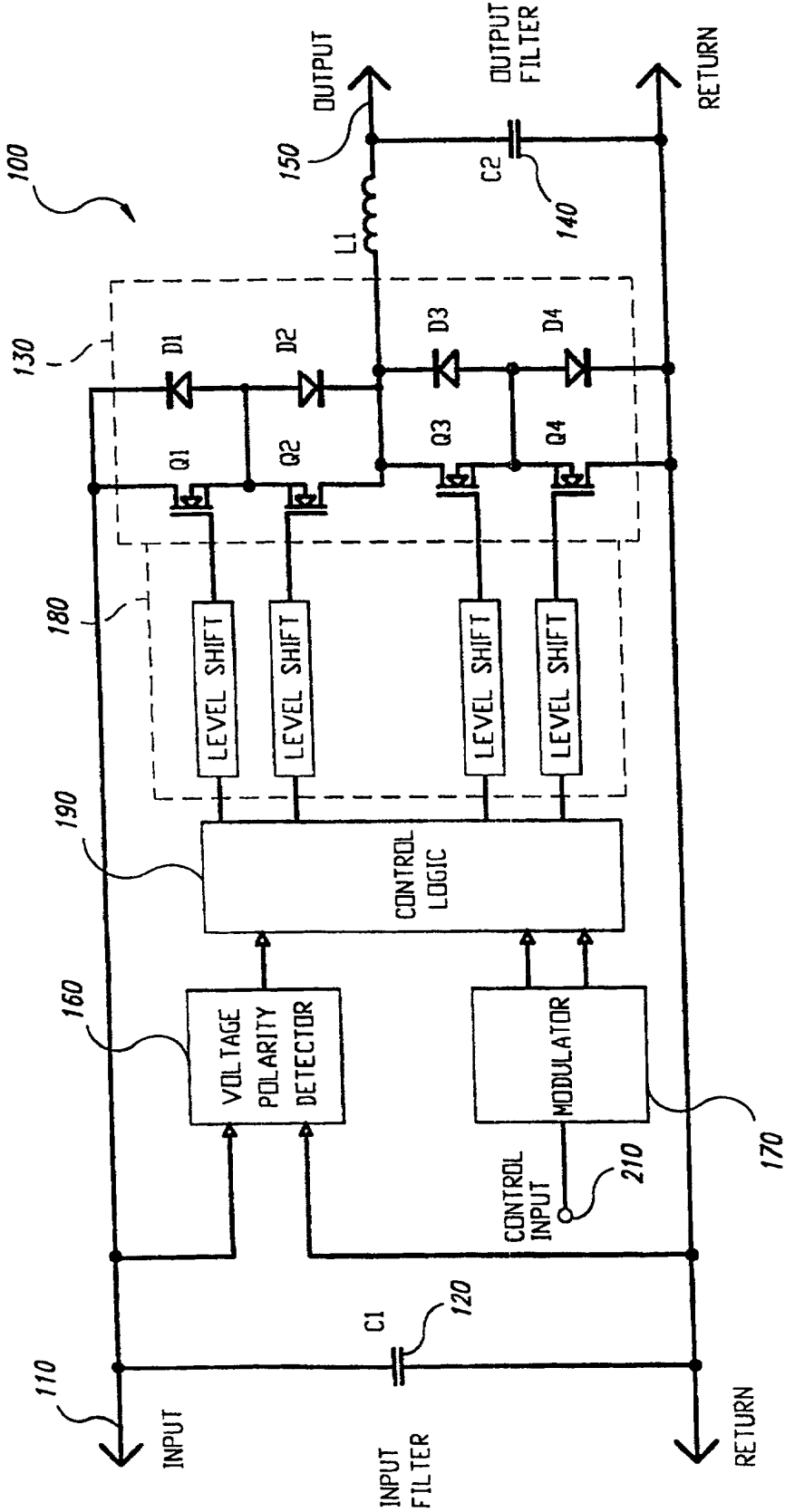


Fig. 30

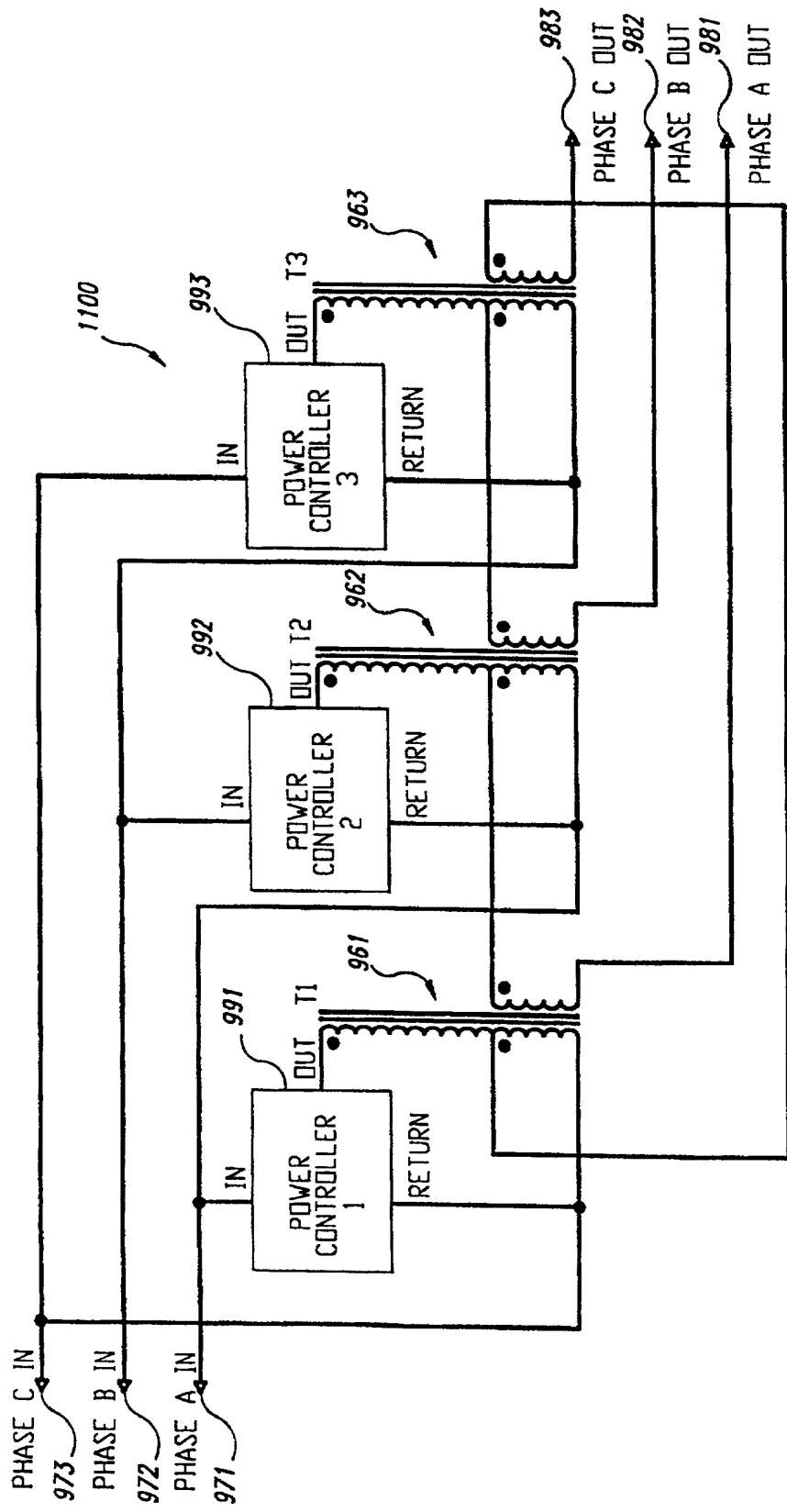


Fig. 31

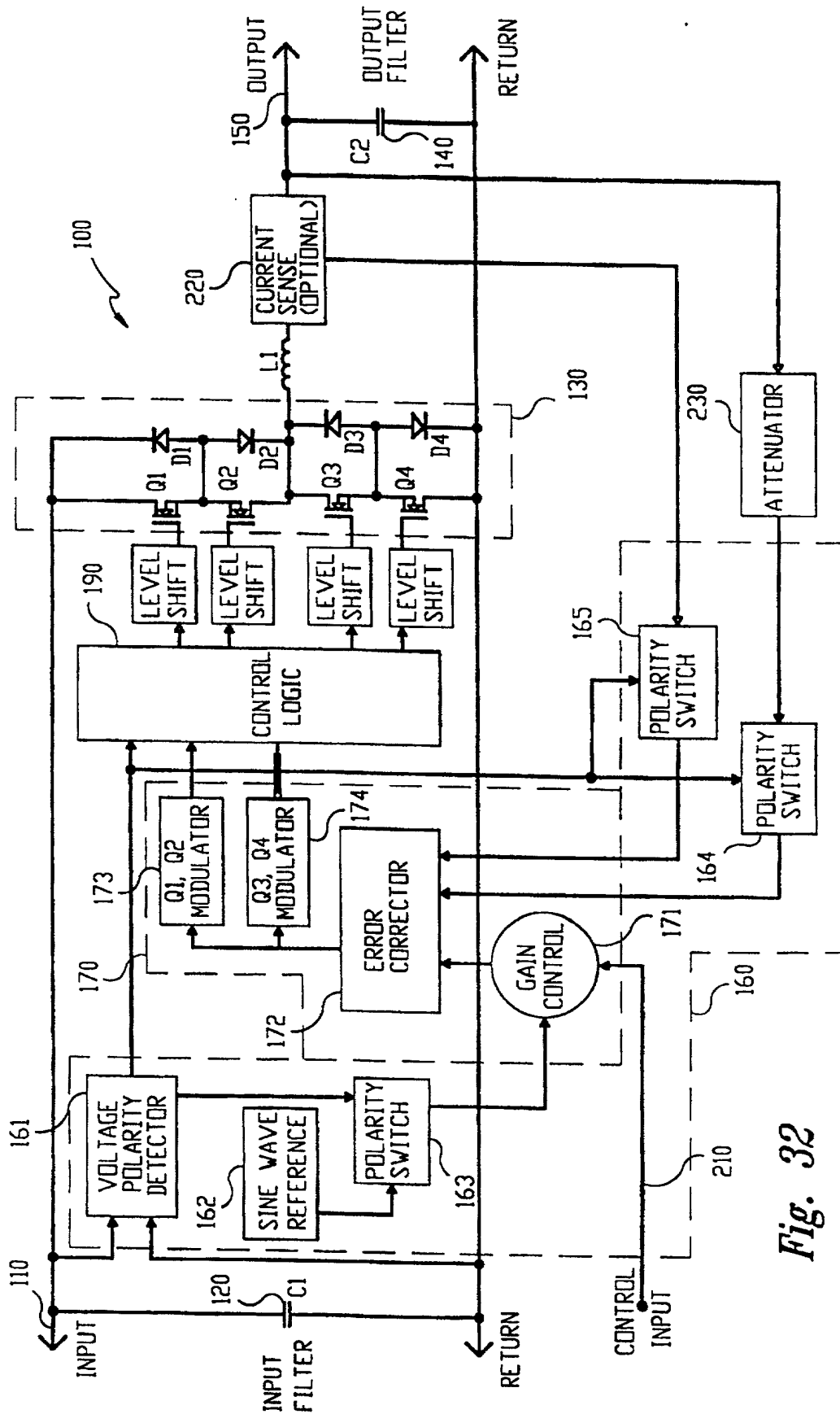


Fig. 32

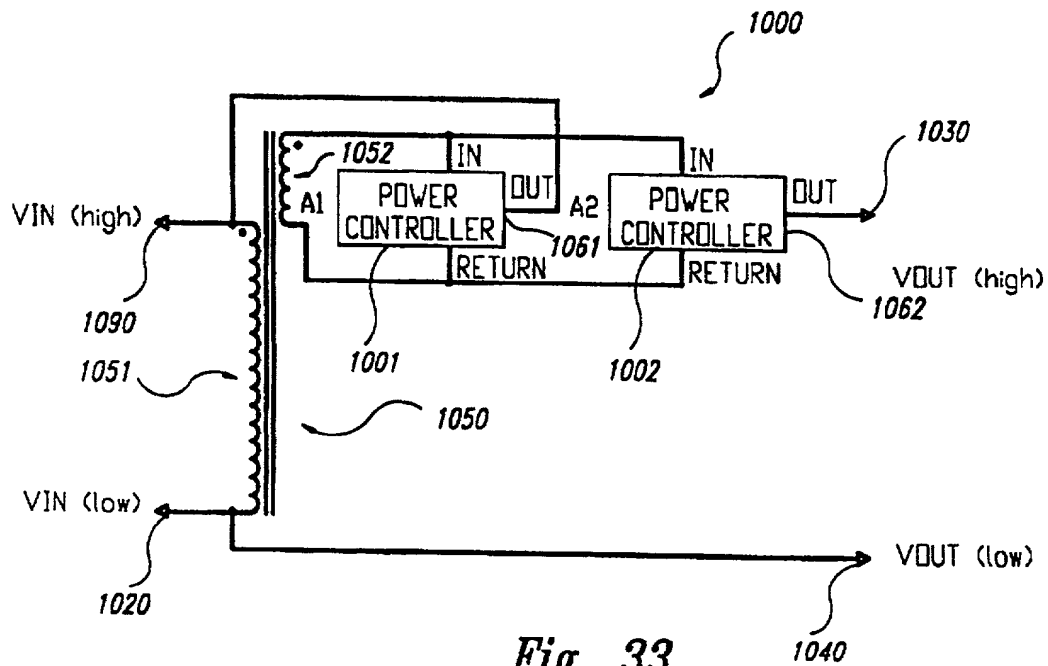


Fig. 33

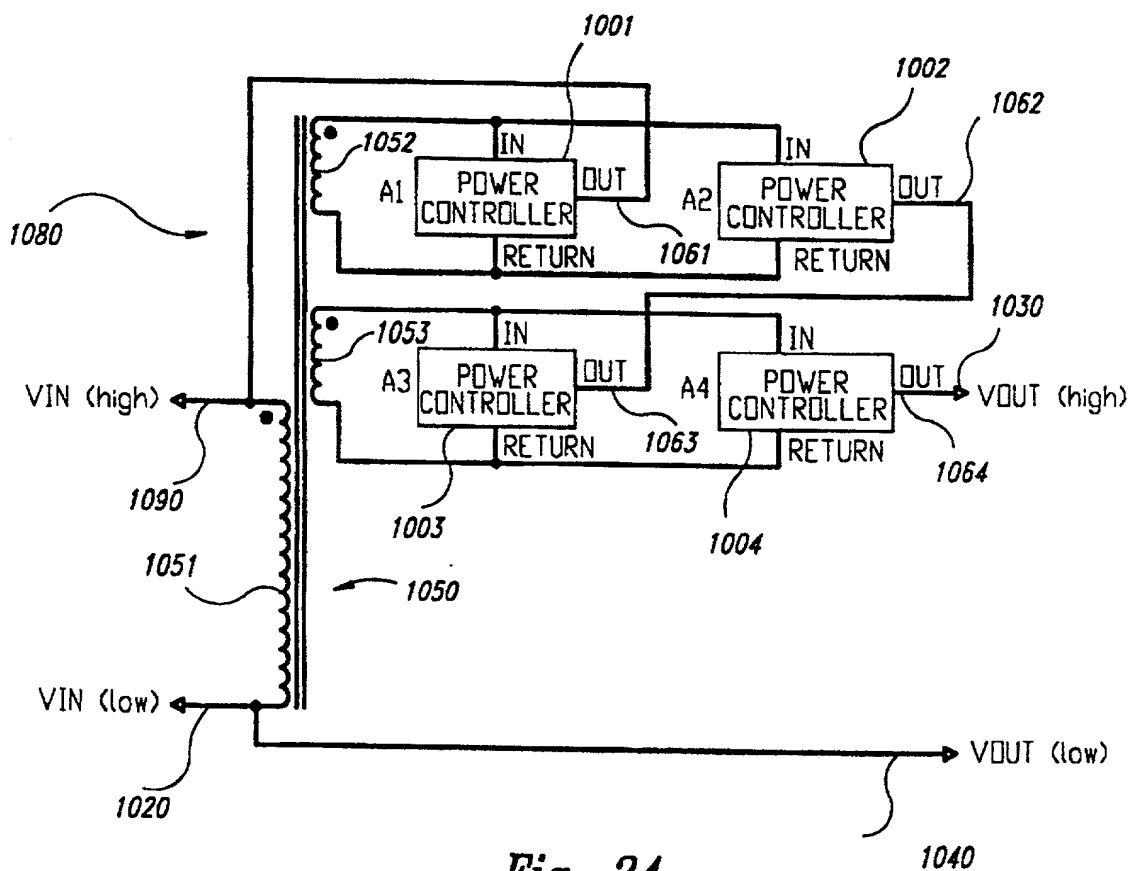


Fig. 34

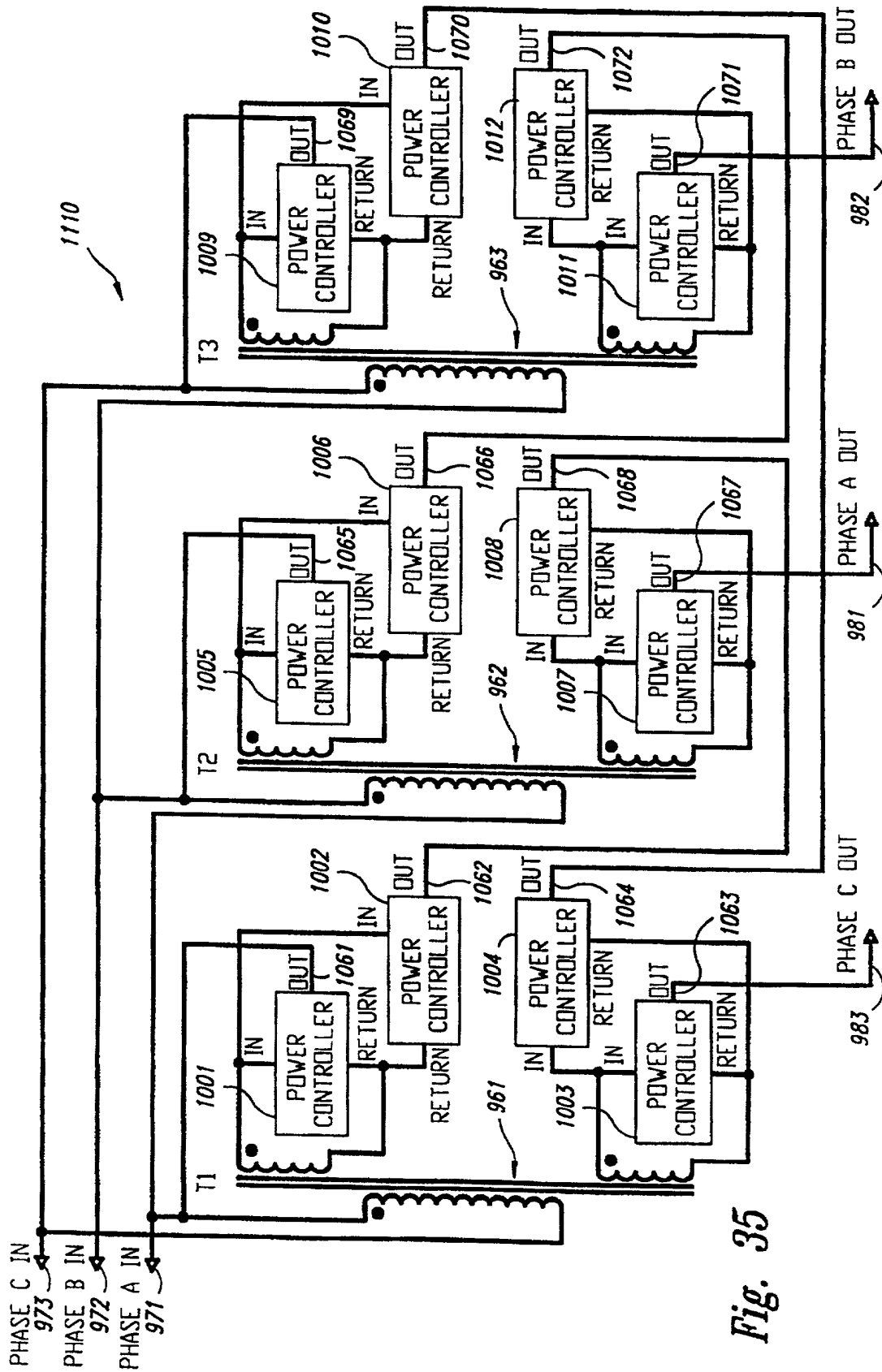


Fig. 35